



SEQUENCE LISTING

<110> Renner, Wolfgang A.  
Bachmann, Martin  
Tissot, Alain  
Maurer, Patrick  
Lechner, Franziska  
Sebbel, Peter  
Piossek, Christine

<120> Molecular Antigen Array

<130> 1700.01900004

<140> 10/050,902

<141> 2002-01-18

<150> US 60/262,379

<151> 2001-01-19

<150> US 60/288,549

<151> 2001-05-04

<150> US 60/326,998

<151> 2001-10-05

<150> US 60/331,045

<151> 2001-11-07

<160> 430

<170> PatentIn Ver. 3.2

<210> 1

<211> 41

<212> DNA

<213> Artificial Sequence

<220>

<223> Primer

<400> 1  
ggggacgcgt gcagcaggta accaccgtta aagaaggcac c

41

<210> 2

<211> 44

<212> DNA

<213> Artificial Sequence

<220>

<223> Primer

<400> 2  
cggtgggttac ctgctgcacg cgttgcttaa ggcacatgta gcgg

44

<210> 3

<211> 20

<212> DNA  
<213> Artificial Sequence

<220>  
<223> Primer

<400> 3  
ccatgaggcc tacgataccc 20

<210> 4  
<211> 25  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Primer

<400> 4  
ggcactcacg gcgcgcttta caggc 25

<210> 5  
<211> 47  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Primer

<400> 5  
ccttcctttaa cggcgtgttac ctgctggcaa ccaacgtggt tcatgac 47

<210> 6  
<211> 40  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Primer

<400> 6  
aagcatgctg cacgcgtgtg cggcggcgg atcgcccggc 40

<210> 7  
<211> 90  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Primer

<400> 7  
gggtctagat tcccaaccat tcccttatcc aggcctttttg acaacgctat gctccgcgcc 60  
catcgtctgc accagctggc ctttgacacc 90

<210> 8  
<211> 108

<212> DNA  
<213> Artificial Sequence

<220>  
<223> Primer

<400> 8  
gggtctagaa ggaggtaaaa aacgatgaaa aagacagcta tcgcgattgc agtggcactg 60  
gctgggtttcg ctaccgtagc gcaggccttc ccaaccattc cttatcc 108

<210> 9  
<211> 31  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Primer

<400> 9  
cccgaattcc tagaagccac agctgccctc c 31

<210> 10  
<211> 24  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Primer

<400> 10  
cctgcggttg tctgaccgac accc 24

<210> 11  
<211> 41  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Primer

<400> 11  
ccgcggaaga gccaccgcaa ccaccgtgtg ccgccaggat g 41

<210> 12  
<211> 33  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Primer

<400> 12  
ctatcatcta gaatgaatag aggattcttt aac 33

<210> 13  
<211> 15

<212> DNA  
<213> Artificial Sequence

<220>  
<223> Modified ribosome binding site

<400> 13  
aggaggtaaa aaacg

15

<210> 14  
<211> 21  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> signal peptide

<400> 14  
Met Lys Lys Thr Ala Ile Ala Ile Ala Val Ala Leu Ala Gly Phe Ala  
1 5 10 15  
Thr Val Ala Gln Ala  
20

<210> 15  
<211> 46  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> modified Fos construct

<400> 15  
Cys Gly Gly Leu Thr Asp Thr Leu Gln Ala Glu Thr Asp Gln Val Glu  
1 5 10 15  
Asp Glu Lys Ser Ala Leu Gln Thr Glu Ile Ala Asn Leu Leu Lys Glu  
20 25 30  
Lys Glu Lys Leu Glu Phe Ile Leu Ala Ala His Gly Gly Cys  
35 40 45

<210> 16  
<211> 6  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> peptide linker

<400> 16  
Ala Ala Ala Ser Gly Gly  
1 5

<210> 17  
<211> 6  
<212> PRT

<213> Artificial Sequence

<220>

<223> peptide linker

<400> 17

Gly Gly Ser Ala Ala Ala  
1 5

<210> 18

<211> 256

<212> DNA

<213> Artificial Sequence

<220>

<223> Fos fusion construct

<400> 18

gaattcagga ggtaaaaaac gatgaaaaag acagctatcg cgattgcagt ggcactggct 60  
ggtttcgcta ccgtagcgca ggcttgggtg ggggcggccg cttctggtgg ttgcggtggt 120  
ctgaccgaca ccctgcaggc ggaaaccgac caggtggaag acgaaaaatc cgcgctgcaa 180  
accgaaatcg cgaacctgct gaaagaaaaa gaaaagctgg agttcatcct ggcggcacac 240  
ggtggttgct aagctt 256

<210> 19

<211> 52

<212> PRT

<213> Artificial Sequence

<220>

<223> Fos fusion construct

<400> 19

Ala Ala Ala Ser Gly Gly Cys Gly Gly Leu Thr Asp Thr Leu Gln Ala  
5 10 15

Glu Thr Asp Gln Val Glu Asp Glu Lys Ser Ala Leu Gln Thr Glu Ile  
20 25 30

Ala Asn Leu Leu Lys Glu Lys Glu Lys Leu Glu Phe Ile Leu Ala Ala  
35 40 45

His Gly Gly Cys  
50

<210> 20

<211> 261

<212> DNA

<213> Artificial Sequence

<220>

<223> Fos fusion construct

<220>

<221> CDS

<222> (22) .. (240)

<400> 20  
gaattcagga ggtaaaaaaac g atg aaa aag aca gct atc gcg att gca gtg 51  
Met Lys Lys Thr Ala Ile Ala Ile Ala Val 10  
1 5  
  
gca ctg gct ggt ttc gct acc gta gcg cag gcc tgc ggt ggt ctg acc 99  
Ala Leu Ala Gly Phe Ala Thr Val Ala Gln Ala Cys Gly Gly Leu Thr 25  
15 20  
  
gac acc ctg cag gcg gaa acc gac cag gtg gaa gac gaa aaa tcc gcg 147  
Asp Thr Leu Gln Ala Glu Thr Asp Gln Val Glu Asp Glu Lys Ser Ala 40  
30 35  
  
ctg caa acc gaa atc gcg aac ctg ctg aaa gaa aaa gaa aag ctg gag 195  
Leu Gln Thr Glu Ile Ala Asn Leu Leu Lys Glu Lys Glu Lys Leu Glu 55  
45 50  
  
ttc atc ctg gcg gca cac ggt ggt tgc ggt ggt tct gcg gcc gct 240  
Phe Ile Leu Ala Ala His Gly Gly Cys Gly Gly Ser Ala Ala Ala 70  
60 65  
  
gggtgtgggg atatcaagct t 261

<210> 21  
<211> 73  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Fos fusion construct

<400> 21  
Met Lys Lys Thr Ala Ile Ala Ile Ala Val Ala Leu Ala Gly Phe Ala  
1 5 10 15  
  
Thr Val Ala Gln Ala Cys Gly Gly Leu Thr Asp Thr Leu Gln Ala Glu  
20 25 30  
  
Thr Asp Gln Val Glu Asp Glu Lys Ser Ala Leu Gln Thr Glu Ile Ala  
35 40 45  
  
Asn Leu Leu Lys Glu Lys Glu Lys Leu Glu Phe Ile Leu Ala Ala His  
50 55 60  
  
Gly Gly Cys Gly Gly Ser Ala Ala Ala  
65 70

<210> 22  
<211> 196  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Fos fusion construct

<220>  
<221> CDS

<222> (34)..(189)

<400> 22

```
gaattcagga ggtaaaaaga tatcgggtgt ggg gcg gcc gct tct ggt ggt tgc 54
                               Ala Ala Ala Ser Gly Gly Cys
                               1                               5

ggt ggt ctg acc gac acc ctg cag gcg gaa acc gac cag gtg gaa gac 102
Gly Gly Leu Thr Asp Thr Leu Gln Ala Glu Thr Asp Gln Val Glu Asp
          10                15                20

gaa aaa tcc gcg ctg caa acc gaa atc gcg aac ctg ctg aaa gaa aaa 150
Glu Lys Ser Ala Leu Gln Thr Glu Ile Ala Asn Leu Leu Lys Glu Lys
          25                30                35

gaa aag ctg gag ttc atc ctg gcg gca cac ggt ggt tgc taagctt 196
Glu Lys Leu Glu Phe Ile Leu Ala Ala His Gly Gly Cys
          40                45                50
```

<210> 23

<211> 52

<212> PRT

<213> Artificial Sequence

<220>

<223> Fos fusion construct

<400> 23

```
Ala Ala Ala Ser Gly Gly Cys Gly Gly Leu Thr Asp Thr Leu Gln Ala
          1                5                10                15

Glu Thr Asp Gln Val Glu Asp Glu Lys Ser Ala Leu Gln Thr Glu Ile
          20                25                30

Ala Asn Leu Leu Lys Glu Lys Glu Lys Leu Glu Phe Ile Leu Ala Ala
          35                40                45

His Gly Gly Cys
          50
```

<210> 24

<211> 204

<212> DNA

<213> Artificial Sequence

<220>

<223> Fos fusion construct

<400> 24

```
gaattcagga ggtaaaaaaac gatggcttgc ggtggtctga ccgacaccct gcaggcggaa 60
accgaccagg tggaagacga aaaatccgcg ctgcaaaccg aaatcgcgaa cctgctgaaa 120
gaaaaagaaa agctggagtt catcctggcg gcacacgggtg gttgcgggtgg ttctgcggcc 180
gctgggtgtg gggatatcaa gctt                                     204
```

<210> 25

<211> 56

<212> PRT

<213> Artificial Sequence

<220>

<223> Fos fusion construct

<400> 25

```
Lys Thr Met Ala Cys Gly Gly Leu Thr Asp Thr Leu Gln Ala Glu Thr
 1             5             10             15
Asp Gln Val Glu Asp Glu Lys Ser Ala Leu Gln Thr Glu Ile Ala Asn
          20             25             30
Leu Leu Lys Glu Lys Glu Lys Leu Glu Phe Ile Leu Ala Ala His Gly
          35             40             45
Gly Cys Gly Gly Ser Ala Ala Ala
 50             55
```

<210> 26

<211> 26

<212> PRT

<213> Homo sapiens

<400> 26

```
Met Ala Thr Gly Ser Arg Thr Ser Leu Leu Leu Ala Phe Gly Leu Leu
 1             5             10             15

Cys Leu Pro Trp Leu Gln Glu Gly Ser Ala
          20             25
```

<210> 27

<211> 262

<212> DNA

<213> Artificial Sequence

<220>

<223> Fos fusion construct

<400> 27

```
gaattcaggc ctatggctac aggtcccgagg acgtccctgc tcctggcttt tggcctgctc 60
tgccctgccct ggcttcaaga gggcagcgct ggggtgtgggg cggccgcttc tgggtggttgc 120
gggtggtctga ccgacaccct gcaggcgga accgaccagg tggaagacga aaaatccgcg 180
ctgcaaaccg aaatcgcgaa cctgctgaaa gaaaaagaaa agctggagtt catcctggcg 240
gcacacggtg gttgctaagc tt                                     262
```

<210> 28

<211> 52

<212> PRT

<213> Artificial Sequence

<220>

<223> Fos fusion construct

<400> 28

```
Ala Ala Ala Ser Gly Gly Cys Gly Gly Leu Thr Asp Thr Leu Gln Ala
          5             10             15

Glu Thr Asp Gln Val Glu Asp Glu Lys Ser Ala Leu Gln Thr Glu Ile
          20             25             30
```



Ala Asn Leu Leu Lys Glu Lys Glu Lys Leu Glu Phe Ile Leu Ala Ala  
35 40 45

His Gly Gly Cys  
50

<210> 29  
<211> 261  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Fos fusion construct

<220>  
<221> CDS  
<222> (7)..(240)

<400> 29  
gaattc atg gct aca ggc tcc cgg acg tcc ctg ctc ctg gct ttt ggc 48  
Met Ala Thr Gly Ser Arg Thr Ser Leu Leu Leu Ala Phe Gly  
1 5 10  
  
ctg ctc tgc ctg ccc tgg ctt caa gag ggc agc gct tgc ggt ggt ctg 96  
Leu Leu Cys Leu Pro Trp Leu Gln Glu Gly Ser Ala Cys Gly Gly Leu  
15 20 25 30  
  
acc gac acc ctg cag gcg gaa acc gac cag gtg gaa gac gaa aaa tcc 144  
Thr Asp Thr Leu Gln Ala Glu Thr Asp Gln Val Glu Asp Glu Lys Ser  
35 40 45  
  
gcg ctg caa acc gaa atc gcg aac ctg ctg aaa gaa aaa gaa aag ctg 192  
Ala Leu Gln Thr Glu Ile Ala Asn Leu Leu Lys Glu Lys Glu Lys Leu  
50 55 60  
  
gag ttc atc ctg gcg gca cac ggt ggt tgc ggt ggt tct gcg gcc gct 240  
Glu Phe Ile Leu Ala Ala His Gly Gly Cys Gly Gly Ser Ala Ala Ala  
65 70 75  
  
gggtgtggga ggcctaagct t 261

<210> 30  
<211> 78  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Fos fusion construct

<400> 30  
Met Ala Thr Gly Ser Arg Thr Ser Leu Leu Leu Ala Phe Gly Leu Leu  
1 5 10 15  
  
Cys Leu Pro Trp Leu Gln Glu Gly Ser Ala Cys Gly Gly Leu Thr Asp  
20 25 30  
  
Thr Leu Gln Ala Glu Thr Asp Gln Val Glu Asp Glu Lys Ser Ala Leu  
35 40 45

Gln Thr Glu Ile Ala Asn Leu Leu Lys Glu Lys Glu Lys Leu Glu Phe  
50 55 60

Ile Leu Ala Ala His Gly Gly Cys Gly Gly Ser Ala Ala Ala  
65 70 75

<210> 31  
<211> 44  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Primer

<400> 31 44  
cctgggtggg ggcggccgct tctggtggtt gcggtggtct gacc

<210> 32  
<211> 44  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Primer

<400> 32 44  
ggtgggaatt caggaggtaa aaagatatcg ggtgtggggc ggcc

<210> 33  
<211> 47  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Primer

<400> 33 47  
ggtgggaatt caggaggtaa aaaacgatgg cttgcggtgg tctgacc

<210> 34  
<211> 18  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Primer

<400> 34 18  
gcttgcggtg gtctgacc

<210> 35  
<211> 27  
<212> DNA

<213> Artificial Sequence

<220>

<223> Primer

<400> 35

ccaccaagct tagcaaccac cgtgtgc

27

<210> 36

<211> 54

<212> DNA

<213> Artificial Sequence

<220>

<223> Primer

<400> 36

ccaccaagct tgatatcccc acacccagcg gccgcagaac caccgcaacc accg

54

<210> 37

<211> 32

<212> DNA

<213> Artificial Sequence

<220>

<223> Primer

<400> 37

ccaccaagct taggcctccc acacccagcg gc

32

<210> 38

<211> 29

<212> DNA

<213> Artificial Sequence

<220>

<223> Primer

<400> 38

ggtgggaatt caggaggtaa aaaacgatg

29

<210> 39

<211> 32

<212> DNA

<213> Artificial Sequence

<220>

<223> Primer

<400> 39

ggtgggaatt caggcctatg gctacaggct cc

32

<210> 40

<211> 27

<212> DNA

<213> Artificial Sequence

<220>

<223> Primer

<400> 40

ggtgggaatt catggctaca ggctccc

27

<210> 41

<211> 59

<212> DNA

<213> Artificial Sequence

<220>

<223> Primer

<400> 41

gggtctagaa tggctacagg ctcccggacg tccctgctcc tggtttttgg cctgctctg 59

<210> 42

<211> 58

<212> DNA

<213> Artificial Sequence

<220>

<223> Primer

<400> 42

cgcaggcctc ggcactgccc tcttgaagcc agggcaggca gagcaggcca aaagccag 58

<210> 43

<211> 402

<212> DNA

<213> Artificial Sequence

<220>

<223> Modified bee venom phospholipase A2

<220>

<221> CDS

<222> (1)..(402)

<400> 43

atc atc tac cca ggt act ctg tgg tgt ggt cac ggc aac aaa tct tct 48  
Ile Ile Tyr Pro Gly Thr Leu Trp Cys Gly His Gly Asn Lys Ser Ser  
1 5 10 15

ggt ccg aac gaa ctc ggc cgc ttt aaa cac acc gac gca tgc tgt cgc 96  
Gly Pro Asn Glu Leu Gly Arg Phe Lys His Thr Asp Ala Cys Cys Arg  
20 25 30

acc cag gac atg tgt ccg gac gtc atg tct gct ggt gaa tct aaa cac 144  
Thr Gln Asp Met Cys Pro Asp Val Met Ser Ala Gly Glu Ser Lys His  
35 40 45

ggg tta act aac acc gct tct cac acg cgt ctc agc tgc gac tgc gac 192  
Gly Leu Thr Asn Thr Ala Ser His Thr Arg Leu Ser Cys Asp Cys Asp  
50 55 60

gac aaa ttc tac gac tgc ctt aag aac tcc gcc gat acc atc tct tct 240  
 Asp Lys Phe Tyr Asp Cys Leu Lys Asn Ser Ala Asp Thr Ile Ser Ser  
 65 70 75 80

tac ttc gtt ggt aaa atg tat ttc aac ctg atc gat acc aaa tgt tac 288  
 Tyr Phe Val Gly Lys Met Tyr Phe Asn Leu Ile Asp Thr Lys Cys Tyr  
 85 90 95

aaa ctg gaa cac ccg gta acc ggc tgc ggc gaa cgt acc gaa ggt cgc 336  
 Lys Leu Glu His Pro Val Thr Gly Cys Gly Glu Arg Thr Glu Gly Arg  
 100 105 110

tgc ctg cac tac acc gtt gac aaa tct aaa ccg aaa gtt tac cag tgg 384  
 Cys Leu His Tyr Thr Val Asp Lys Ser Lys Pro Lys Val Tyr Gln Trp  
 115 120 125

ttc gac ctg cgc aaa tac 402  
 Phe Asp Leu Arg Lys Tyr  
 130

<210> 44  
 <211> 134  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Modified bee venom phospholipase A2

<400> 44  
 Ile Ile Tyr Pro Gly Thr Leu Trp Cys Gly His Gly Asn Lys Ser Ser  
 1 5 10 15  
 Gly Pro Asn Glu Leu Gly Arg Phe Lys His Thr Asp Ala Cys Cys Arg  
 20 25 30  
 Thr Gln Asp Met Cys Pro Asp Val Met Ser Ala Gly Glu Ser Lys His  
 35 40 45  
 Gly Leu Thr Asn Thr Ala Ser His Thr Arg Leu Ser Cys Asp Cys Asp  
 50 55 60  
 Asp Lys Phe Tyr Asp Cys Leu Lys Asn Ser Ala Asp Thr Ile Ser Ser  
 65 70 75 80  
 Tyr Phe Val Gly Lys Met Tyr Phe Asn Leu Ile Asp Thr Lys Cys Tyr  
 85 90 95  
 Lys Leu Glu His Pro Val Thr Gly Cys Gly Glu Arg Thr Glu Gly Arg  
 100 105 110  
 Cys Leu His Tyr Thr Val Asp Lys Ser Lys Pro Lys Val Tyr Gln Trp  
 115 120 125  
 Phe Asp Leu Arg Lys Tyr  
 130

<210> 45  
 <211> 19

<212> DNA  
<213> Artificial Sequence

<220>  
<223> Primer

<400> 45  
ccatcatcta cccaggtac 19

<210> 46  
<211> 34  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Primer

<400> 46  
cccacacca gcggccgct atttgcgag gtcg 34

<210> 47  
<211> 36  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Primer

<400> 47  
cgggtgttct gcggccgcta tcatctaccc aggtac 36

<210> 48  
<211> 19  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Primer

<400> 48  
ttagtatttg cgcaggctcg 19

<210> 49  
<211> 18  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Primer

<400> 49  
ccggtccat cggcgcag 18

<210> 50  
<211> 36  
<212> DNA

<213> Artificial Sequence

<220>

<223> Primer

<400> 50

accaccagaa gcggccgcag gggaaacaca tctgcc

36

<210> 51

<211> 35

<212> DNA

<213> Artificial Sequence

<220>

<223> Primer

<400> 51

cggtggttct gcggccgctg gctccatcgg tgcag

35

<210> 52

<211> 21

<212> DNA

<213> Artificial Sequence

<220>

<223> Primer

<400> 52

ttaaggggaa acacatctgc c

21

<210> 53

<211> 33

<212> DNA

<213> Artificial Sequence

<220>

<223> Primer

<400> 53

actagtctag aatgagagtg aaggagaaat atc

33

<210> 54

<211> 42

<212> DNA

<213> Artificial Sequence

<220>

<223> Primer

<400> 54

tagcatgcta gcaccgaatt tatctaattc caataattct tg

42

<210> 55

<211> 51

<212> DNA

<213> Artificial Sequence

<220>  
<223> Primer

<400> 55  
gtagcaccca ccaaggcaaa gctgaaagct acccagctcg agaaactggc a 51

<210> 56  
<211> 48  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Primer

<400> 56  
caaagctcct attcccactg ccagtttctc gagctgggta gctttcag 48

<210> 57  
<211> 36  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Primer

<400> 57  
ttcgggtgcta gcgggtggctg cggtggtctg accgac 36

<210> 58  
<211> 37  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Primer

<400> 58  
gatgctgggc ccttaaccgc aaccaccgtg tgccgcc 37

<210> 59  
<211> 46  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> JUN amino acid sequence

<400> 59  
Cys Gly Gly Arg Ile Ala Arg Leu Glu Glu Lys Val Lys Thr Leu Lys  
1 5 10 15

Ala Gln Asn Ser Glu Leu Ala Ser Thr Ala Asn Met Leu Arg Glu Gln  
20 25 30

Val Ala Gln Leu Lys Gln Lys Val Met Asn His Val Gly Cys



35

40

45

<210> 60  
<211> 46  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> FOS amino acid sequence

<400> 60  
Cys Gly Gly Leu Thr Asp Thr Leu Gln Ala Glu Thr Asp Gln Val Glu  
1 5 10 15  
Asp Glu Lys Ser Ala Leu Gln Thr Glu Ile Ala Asn Leu Leu Lys Glu  
20 25 30  
Lys Glu Lys Leu Glu Phe Ile Leu Ala Ala His Gly Gly Cys  
35 40 45

<210> 61  
<211> 33  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Primer

<400> 61  
ccggaattca tgtgcggtgg tcggatcgcc cgg 33

<210> 62  
<211> 39  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Primer

<400> 62  
gtcgctaccc gcggctccgc aaccaacgtg gttcatgac 39

<210> 63  
<211> 50  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Primer

<400> 63  
gttggttgcg gagccgcggg tagcgacatt gacccttata aagaatttgg 50

<210> 64  
<211> 38

<212> DNA  
<213> Artificial Sequence

<220>  
<223> Primer

<400> 64  
cgcggtcccaa gcttctacgg aagcgttgat aggatagg

38

<210> 65  
<211> 33  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Primer

<400> 65  
ctagccgcgg gttgcggtgg tcggatcgcc cgg

33

<210> 66  
<211> 38  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Primer

<400> 66  
cgcggtcccaa gcttttagca accaacgtgg ttcattgac

38

<210> 67  
<211> 31  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Primer

<400> 67  
ccggaattca tggacattga cccttataaa g

31

<210> 68  
<211> 45  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Primer

<400> 68  
ccgaccaccg caaccgcgg ctagcggaag cgttgatagg atagg

45

<210> 69  
<211> 47  
<212> DNA

<213> Artificial Sequence

<220>

<223> Primer

<400> 69

ctaattggatc cgggtgggggc tgcggtgggc ggatcgcccg gctcgag

47

<210> 70

<211> 39

<212> DNA

<213> Artificial Sequence

<220>

<223> Primer

<400> 70

gtcgctaccc gcggctccgc aaccaacgtg gttcatgac

39

<210> 71

<211> 31

<212> DNA

<213> Artificial Sequence

<220>

<223> Primer

<400> 71

ccggaattca tggacattga cccttataaa g

31

<210> 72

<211> 48

<212> DNA

<213> Artificial Sequence

<220>

<223> Primer

<400> 72

ccgaccaccg cagccccac cggatccatt agtaccacc caggtagc

48

<210> 73

<211> 45

<212> DNA

<213> Artificial Sequence

<220>

<223> Primer

<400> 73

gttggttgcg gagccgcggg tagcgacctg gtagtcagtt atgtc

45

<210> 74

<211> 38

<212> DNA

<213> Artificial Sequence

<220>  
<223> Primer

<400> 74  
cgcggtcccaa gcttctacgg aagcggtgat aggatagg 38

<210> 75  
<211> 33  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Primer

<400> 75  
ctagccgcgg gttgcggtgg tcggatcgcc cgg 33

<210> 76  
<211> 38  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Primer

<400> 76  
cgcggtcccaa gcttttagca accaacgtgg ttcattgac 38

<210> 77  
<211> 30  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Primer

<400> 77  
ccggaattca tggccacact tttaaggagc 30

<210> 78  
<211> 38  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Primer

<400> 78  
cgcggtcccaa gcttttagca accaacgtgg ttcattgac 38

<210> 79  
<211> 31  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Primer

<400> 79

ccggaattca tggacattga cccttataaa g

31

<210> 80

<211> 51

<212> DNA

<213> Artificial Sequence

<220>

<223> Primer

<400> 80

cctagagcca cctttgccac catcttctaa attagtagcc acccaggtag c

51

<210> 81

<211> 48

<212> DNA

<213> Artificial Sequence

<220>

<223> Primer

<400> 81

gaagatggtg gcaaagggtg ctctagggac ctagtagtca gttatgtc

48

<210> 82

<211> 38

<212> DNA

<213> Artificial Sequence

<220>

<223> Primer

<400> 82

cgcgccccaa gcttctaaac aacagtagtc tccggaag

38

<210> 83

<211> 36

<212> DNA

<213> Artificial Sequence

<220>

<223> Primer

<400> 83

gccgaattcc tagcagctag caccgaattt atctaa

36

<210> 84

<211> 33

<212> DNA  
<213> Artificial Sequence

<220>  
<223> Primer

<400> 84  
ggttaagtgc acatgagagt gaaggagaaa tat 33

<210> 85  
<211> 30  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Primer

<400> 85  
taaccgaatt caggaggtaa aaagatatgg 30

<210> 86  
<211> 35  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Primer

<400> 86  
gaagtaaagc ttttaaccac cgcaaccacc agaag 35

<210> 87  
<211> 33  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Primer

<400> 87  
tcgaatgggc cctcatcttc gtgtgctagt cag 33

<210> 88  
<211> 4  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Fos fusion construct

<400> 88  
Glu Phe Arg Arg  
1

<210> 89  
<211> 183

<212> PRT  
<213> Hepatitis B virus

<400> 89  
Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu  
1 5 10 15  
Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp  
20 25 30  
Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys  
35 40 45  
Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu  
50 55 60  
Leu Met Thr Leu Ala Thr Trp Val Gly Gly Asn Leu Glu Asp Pro Ile  
65 70 75 80  
Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys  
85 90 95  
Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg  
100 105 110  
Glu Thr Val Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr  
115 120 125  
Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro  
130 135 140  
Glu Thr Thr Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr  
145 150 155 160  
Pro Ser Pro Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser  
165 170 175  
Gln Ser Arg Gly Ser Gln Cys  
180

<210> 90  
<211> 183  
<212> PRT  
<213> Hepatitis B virus

<400> 90  
Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu  
1 5 10 15  
Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp  
20 25 30  
Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys  
35 40 45  
Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu  
50 55 60  
Leu Met Thr Leu Ala Thr Trp Val Gly Gly Asn Leu Glu Asp Pro Thr  
65 70 75 80

Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys  
85 90 95  
Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg  
100 105 110  
Glu Thr Val Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr  
115 120 125  
Pro Pro Ala Tyr Arg Pro Thr Asn Ala Pro Ile Leu Ser Thr Leu Pro  
130 135 140  
Glu Thr Cys Val Ile Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr  
145 150 155 160  
Pro Ser Pro Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Ser  
165 170 175  
Gln Ser Arg Gly Ser Gln Cys  
180

<210> 91  
<211> 212  
<212> PRT  
<213> Hepatitis B virus

<400> 91  
Met Gln Leu Phe His Leu Cys Leu Ile Ile Ser Cys Ser Cys Pro Thr  
1 5 10 15  
Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Gly Met Asp Ile  
20 25 30  
Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu Ser Phe Leu  
35 40 45  
Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp Thr Ala Ser  
50 55 60  
Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys Ser Pro His  
65 70 75 80  
His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu Leu Met Thr  
85 90 95  
Leu Ala Thr Trp Val Gly Gly Asn Leu Glu Asp Pro Ile Ser Arg Asp  
100 105 110  
Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys Phe Arg Gln  
115 120 125  
Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg Glu Thr Val  
130 135 140  
Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr Pro Pro Ala  
145 150 155 160  
Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro Glu Thr Thr  
165 170 175



Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr Pro Ser Pro  
180 185 190

Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser Gln Ser Arg  
195 200 205

Glu Ser Gln Cys  
210

<210> 92  
<211> 212  
<212> PRT  
<213> Hepatitis B virus

<400> 92  
Met Gln Leu Phe His Leu Cys Leu Ile Ile Ser Cys Ser Cys Pro Thr  
1 5 10 15

Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Gly Met Asp Ile  
20 25 30

Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu Ser Phe Leu  
35 40 45

Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp Asn Ala Ser  
50 55 60

Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys Ser Pro His  
65 70 75 80

His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu Leu Met Thr  
85 90 95

Leu Ala Thr Trp Val Gly Gly Asn Leu Glu Asp Pro Ile Ser Arg Asp  
100 105 110

Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys Phe Arg Gln  
115 120 125

Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg Glu Thr Val  
130 135 140

Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr Pro Pro Ala  
145 150 155 160

Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro Glu Thr Thr  
165 170 175

Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr Pro Ser Pro  
180 185 190

Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser Gln Ser Arg  
195 200 205

Glu Ser Gln Cys  
210

<210> 93

<211> 183  
<212> PRT  
<213> Hepatitis B virus

<400> 93  
Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu  
1 5 10 15  
Ser Phe Leu Pro Thr Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp  
20 25 30  
Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys  
35 40 45  
Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu  
50 55 60  
Leu Met Thr Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ala  
65 70 75 80  
Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys  
85 90 95  
Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg  
100 105 110  
Glu Thr Val Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr  
115 120 125  
Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro  
130 135 140  
Glu Thr Cys Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr  
145 150 155 160  
Pro Ser Pro Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser  
165 170 175  
Gln Ser Arg Glu Ser Gln Cys  
180

<210> 94  
<211> 212  
<212> PRT  
<213> Hepatitis B virus

<400> 94  
Met Gln Leu Phe His Leu Cys Leu Ile Ile Ser Cys Ser Cys Pro Thr  
1 5 10 15  
Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Gly Met Asp Ile  
20 25 30  
Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu Ser Phe Leu  
35 40 45  
Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp Thr Ala Ser  
50 55 60  
Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys Ser Pro His

65		70		75		80
His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Asp Leu Met Thr						
	85		90		95	
Leu Ala Thr Trp Val Gly Gly Asn Leu Glu Asp Pro Val Ser Arg Asp						
	100		105		110	
Leu Val Val Ser Tyr Val Asn Thr Asn Val Gly Leu Lys Phe Arg Gln						
	115		120		125	
Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg Glu Thr Val						
	130		135		140	
Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr Pro Pro Ala						
	145		150		155	160
Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro Glu Thr Thr						
	165		170		175	
Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr Pro Ser Pro						
	180		185		190	
Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser Gln Ser Arg						
	195		200		205	
Glu Ser Gln Cys						
	210					
<210> 95						
<211> 212						
<212> PRT						
<213> Hepatitis B virus						
<400> 95						
Met Gln Leu Phe His Leu Cys Leu Ile Ile Ser Cys Ser Cys Pro Thr						
1		5		10		15
Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Asp Met Asp Ile						
	20		25		30	
Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu Ser Phe Leu						
	35		40		45	
Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp Thr Ala Ser						
	50		55		60	
Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys Ser Pro His						
	65		70		75	80
His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Asp Leu Met Thr						
	85		90		95	
Leu Ala Thr Trp Val Gly Gly Asn Leu Glu Asp Pro Val Ser Arg Asp						
	100		105		110	
Leu Val Val Ser Tyr Val Asn Thr Asn Val Gly Leu Lys Phe Arg Gln						
	115		120		125	
Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg Glu Thr Val						

130 135 140  
Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr Pro Pro Ala  
145 150 155 160  
Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro Glu Thr Thr  
165 170 175  
Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr Pro Ser Pro  
180 185 190  
Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser Gln Ser Arg  
195 200 205  
Glu Ser Gln Cys  
210

<210> 96  
<211> 212  
<212> PRT  
<213> Hepatitis B virus

<400> 96  
Met Gln Leu Phe His Leu Cys Leu Ile Ile Ser Cys Ser Cys Pro Thr  
1 5 10 15  
Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Gly Met Asp Ile  
20 25 30  
Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu Ser Phe Leu  
35 40 45  
Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp Thr Ala Ser  
50 55 60  
Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys Ser Pro Gln  
65 70 75 80  
His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu Leu Met Thr  
85 90 95  
Leu Ala Thr Trp Val Gly Gly Asn Leu Glu Asp Pro Ile Ser Arg Asp  
100 105 110  
Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys Phe Arg Gln  
115 120 125  
Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg Glu Thr Val  
130 135 140  
Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr Pro Pro Ala  
145 150 155 160  
Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro Glu Thr Thr  
165 170 175  
Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr Pro Ser Pro  
180 185 190  
Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser Gln Ser Arg

195	200	205
Glu Ser Gln Cys		
210		
<210> 97		
<211> 212		
<212> PRT		
<213> Hepatitis B virus		
<400> 97		
Met Gln Leu Phe His Leu Cys Leu Ile Ile Ser Cys Ser Cys Pro Thr		
1 5 10 15		
Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Gly Met Asp Ile		
20 25 30		
Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu Ser Phe Leu		
35 40 45		
Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp Thr Ala Ser		
50 55 60		
Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys Ser Pro His		
65 70 75 80		
His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu Leu Met Thr		
85 90 95		
Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ala Ser Arg Asp		
100 105 110		
Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys Phe Arg Gln		
115 120 125		
Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg Glu Thr Val		
130 135 140		
Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr Pro Pro Ala		
145 150 155 160		
Tyr Lys Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro Glu Thr Thr		
165 170 175		
Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr Pro Ser Pro		
180 185 190		
Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser Gln Ser Arg		
195 200 205		
Gly Ser Gln Cys		
210		
<210> 98		
<211> 183		
<212> PRT		
<213> Hepatitis B virus		
<400> 98		

Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu  
1 5 10 15  
Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp  
20 25 30  
Thr Ala Ser Ala Leu Phe Arg Asp Ala Leu Glu Ser Pro Glu His Cys  
35 40 45  
Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu  
50 55 60  
Leu Met Thr Leu Ala Thr Trp Val Gly Gly Asn Leu Glu Asp Pro Ala  
65 70 75 80  
Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys  
85 90 95  
Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg  
100 105 110  
Asp Thr Val Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr  
115 120 125  
Pro Pro Ala Tyr Arg Pro Ser Asn Ala Pro Ile Leu Ser Thr Leu Pro  
130 135 140  
Glu Thr Cys Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr  
145 150 155 160  
Pro Ser Pro Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser  
165 170 175  
Gln Ser Arg Glu Ser Gln Cys  
180

<210> 99  
<211> 183  
<212> PRT  
<213> Hepatitis B virus

<400> 99  
Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu  
1 5 10 15  
Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp  
20 25 30  
Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys  
35 40 45  
Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu  
50 55 60  
Leu Met Thr Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ala  
65 70 75 80  
Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys  
85 90 95

Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg  
100 105 110

Glu Thr Val Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr  
115 120 125

Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro  
130 135 140

Glu Thr Thr Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr  
145 150 155 160

Pro Ser Pro Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser  
165 170 175

Gln Ser Arg Glu Ser Gln Cys  
180

<210> 100

<211> 212

<212> PRT

<213> Hepatitis B virus

<400> 100

Met Gln Leu Phe His Leu Cys Leu Ile Ile Ser Cys Ser Cys Pro Thr  
1 5 10 15

Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Gly Met Asp Ile  
20 25 30

Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu Ser Phe Leu  
35 40 45

Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp Thr Ala Ser  
50 55 60

Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys Ser Pro His  
65 70 75 80

His Thr Ala Leu Arg His Ala Ile Leu Cys Trp Gly Asp Leu Arg Thr  
85 90 95

Leu Ala Thr Trp Val Gly Gly Asn Leu Glu Asp Pro Ile Ser Arg Asp  
100 105 110

Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys Phe Arg Gln  
115 120 125

Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg Glu Thr Val  
130 135 140

Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr Pro Pro Ala  
145 150 155 160

Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro Glu Thr Thr  
165 170 175

Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr Pro Ser Pro  
180 185 190

Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser Gln Ser Arg  
195 200 205

Glu Ser Gln Cys  
210

<210> 101  
<211> 212  
<212> PRT  
<213> Hepatitis B virus

<400> 101  
Met Gln Leu Phe His Leu Cys Leu Ile Ile Ser Cys Ser Cys Pro Thr  
1 5 10 15  
Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Asp Met Asp Ile  
20 25 30  
Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu Ser Phe Leu  
35 40 45  
Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp Thr Ala Ser  
50 55 60  
Ala Leu Phe Arg Asp Ala Leu Glu Ser Pro Glu His Cys Ser Pro His  
65 70 75 80  
His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu Leu Met Thr  
85 90 95  
Leu Ala Thr Trp Val Gly Ala Asn Leu Glu Asp Pro Ala Ser Arg Asp  
100 105 110  
Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys Phe Arg Gln  
115 120 125  
Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg Glu Thr Val  
130 135 140  
Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr Pro Gln Ala  
145 150 155 160  
Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro Glu Thr Cys  
165 170 175  
Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr Pro Ser Pro  
180 185 190  
Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser Gln Ser Arg  
195 200 205  
Glu Ser Gln Cys  
210

<210> 102  
<211> 183  
<212> PRT  
<213> Artificial Sequence



<220>

<223> synthetic human Hepatitis B construct

<400> 102

Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu  
1 5 10 15  
Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp  
20 25 30  
Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys  
35 40 45  
Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu  
50 55 60  
Leu Met Thr Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ala  
65 70 75 80  
Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys  
85 90 95  
Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg  
100 105 110  
Glu Thr Val Leu Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr  
115 120 125  
Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro  
130 135 140  
Glu Thr Thr Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr  
145 150 155 160  
Pro Ser Pro Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser  
165 170 175  
Gln Ser Arg Glu Ser Gln Cys  
180

<210> 103

<211> 212

<212> PRT

<213> Hepatitis B virus

<400> 103

Met Gln Leu Phe His Leu Cys Leu Ile Ile Ser Cys Ser Cys Pro Thr  
1 5 10 15  
Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Gly Met Asp Ile  
20 25 30  
Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu Ser Phe Leu  
35 40 45  
Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp Thr Ala Ser  
50 55 60  
Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys Ser Pro His  
65 70 75 80

His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Asp Leu Met Ser  
85 90 95

Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ile Ser Arg Asp  
100 105 110

Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys Phe Arg Gln  
115 120 125

Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg Glu Thr Val  
130 135 140

Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr Pro Pro Ala  
145 150 155 160

Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro Glu Thr Thr  
165 170 175

Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr Pro Ser Pro  
180 185 190

Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser Gln Ser Arg  
195 200 205

Glu Ser Gln Cys  
210

<210> 104

<211> 183

<212> PRT

<213> Hepatitis B virus

<400> 104

Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu  
1 5 10 15

Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp  
20 25 30

Thr Ala Ser Ala Leu Tyr Arg Asp Ala Leu Glu Ser Pro Glu His Cys  
35 40 45

Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu  
50 55 60

Leu Met Thr Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ala  
65 70 75 80

Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys  
85 90 95

Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg  
100 105 110

Glu Thr Val Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr  
115 120 125

Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro  
130 135 140

Glu Thr Thr Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr  
145 150 155 160

Pro Ser Pro Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser  
165 170 175

Gln Ser Arg Glu Ser Gln Cys  
180

<210> 105

<211> 183

<212> PRT

<213> Hepatitis B virus

<400> 105

Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu  
1 5 10 15

Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp  
20 25 30

Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys  
35 40 45

Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Asp  
50 55 60

Leu Met Thr Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ala  
65 70 75 80

Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys  
85 90 95

Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg  
100 105 110

Glu Thr Val Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr  
115 120 125

Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro  
130 135 140

Glu Thr Thr Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr  
145 150 155 160

Pro Ser Pro Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser  
165 170 175

Gln Ser Arg Glu Ser Gln Cys  
180

<210> 106

<211> 183

<212> PRT

<213> Hepatitis B virus

<400> 106

Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu

1	5	10	15
Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp	20	25	30
Thr Ala Ser Ala Leu Tyr Arg Asp Ala Leu Glu Ser Pro Glu His Cys	35	40	45
Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu	50	55	60
Leu Met Thr Leu Ala Thr Trp Val Gly Ala Asn Leu Glu Asp Pro Ala	65	70	75
Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys	85	90	95
Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg	100	105	110
Glu Thr Val Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr	115	120	125
Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro	130	135	140
Glu Thr Thr Val Val Arg Arg Arg Gly Arg Thr Pro Arg Arg Arg Thr	145	150	155
Pro Ser Pro Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser	165	170	175
Gln Ser Arg Glu Ser Gln Cys	180		

<210> 107  
 <211> 212  
 <212> PRT  
 <213> Hepatitis B virus

<400> 107

Met Gln Leu Phe His Leu Cys Leu Ile Ile Ser Cys Ser Cys Pro Thr	1	5	10	15
Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Gly Met Asp Ile	20	25	30	
Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu Ser Phe Leu	35	40	45	
Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp Thr Ala Ser	50	55	60	
Ala Leu Tyr Arg Asp Ala Leu Glu Ser Pro Glu His Cys Ser Pro His	65	70	75	80
His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu Leu Met Thr	85	90	95	
Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ala Ser Arg Asp				

100	105	110
Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys Phe Arg Gln		
115	120	125
Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg Glu Thr Val		
130	135	140
Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr Pro Pro Ala		
145	150	155
Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro Glu Thr Thr		
	165	170
Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr Pro Ser Pro		
	180	185
Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser Gln Ser Arg		
	195	200
Glu Ser Gln Cys		
210		

<210> 108  
 <211> 212  
 <212> PRT  
 <213> Hepatitis B virus

<400> 108
Met Gln Leu Phe His Leu Cys Leu Ile Ile Ser Cys Ser Cys Pro Thr
1 5 10 15
Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Gly Met Asp Ile
20 25 30
Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu Ser Phe Leu
35 40 45
Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp Thr Ala Ser
50 55 60
Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys Ser Pro His
65 70 75 80
His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Asp Leu Met Thr
85 90 95
Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ala Ser Arg Asp
100 105 110
Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys Phe Arg Gln
115 120 125
Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg Glu Thr Val
130 135 140
Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr Pro Pro Ala
145 150 155 160
Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro Glu Thr Thr

	165		170		175
Val Val Arg	Arg Arg Gly Arg Ser	Pro Arg Arg Arg Thr	Pro Ser Pro		
	180	185	190		
Arg Arg Arg	Arg Ser Gln Ser	Pro Arg Arg Arg Ser	Gln Ser Arg		
	195	200	205		
Glu Ser Gln Cys					
	210				
<210> 109					
<211> 212					
<212> PRT					
<213> Hepatitis B virus					
<400> 109					
Met Gln Leu Phe His	Leu Cys Leu Ile Ile	Ser Cys Thr Cys	Pro Thr		
1	5	10	15		
Val Gln Ala Ser Lys	Leu Cys Leu Gly Trp	Leu Trp Gly Met	Asp Ile		
	20	25	30		
Asp Pro Tyr Lys Glu	Phe Gly Ala Thr	Val Glu Leu Leu	Ser Phe Leu		
	35	40	45		
Pro Ser Asp Phe Phe	Pro Ser Val Arg	Asp Leu Leu Asp	Thr Ala Ser		
	50	55	60		
Ala Leu Tyr Arg Glu	Ala Leu Glu Ser	Pro Glu His Cys	Ser Pro His		
65	70	75	80		
His Thr Ala Leu Arg	Gln Ala Ile Leu	Cys Trp Gly Glu	Leu Met Thr		
	85	90	95		
Leu Ala Thr Trp Val	Gly Val Asn Leu	Glu Asp Pro Ala	Ser Arg Asp		
	100	105	110		
Leu Val Val Ser Tyr	Val Asn Thr Asn	Met Gly Leu Lys	Phe Arg Gln		
	115	120	125		
Leu Leu Trp Phe His	Ile Ser Cys Leu	Thr Phe Gly Arg	Glu Thr Val		
	130	135	140		
Ile Glu Tyr Leu Val	Ala Phe Gly Val	Trp Ile Arg Thr	Pro Pro Ala		
145	150	155	160		
Tyr Arg Pro Pro Asn	Ala Pro Ile Leu	Ser Thr Leu Pro	Glu Thr Thr		
	165	170	175		
Val Val Arg Arg Arg	Gly Arg Ser Pro	Arg Arg Arg Thr	Pro Ser Pro		
	180	185	190		
Arg Arg Arg Arg Ser	Gln Ser Pro Arg	Arg Arg Arg Ser	Gln Ser Arg		
	195	200	205		
Glu Ser Gln Cys					
	210				

<210> 110  
<211> 212  
<212> PRT  
<213> Hepatitis B virus

<400> 110  
Met Gln Leu Phe His Leu Cys Leu Ile Ile Ser Cys Ser Cys Pro Thr  
1 5 10 15  
Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Gly Met Asp Ile  
20 25 30  
Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu Ser Phe Leu  
35 40 45  
Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp Thr Ala Ser  
50 55 60  
Ala Leu Tyr Arg Glu Ala Phe Glu Cys Ser Glu His Cys Ser Pro His  
65 70 75 80  
His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu Leu Met Thr  
85 90 95  
Leu Ala Thr Trp Val Gly Gly Asn Leu Glu Asp Pro Ile Ser Arg Asp  
100 105 110  
Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys Phe Arg Gln  
115 120 125  
Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg Glu Thr Val  
130 135 140  
Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr Pro Pro Ala  
145 150 155 160  
Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro Glu Thr Thr  
165 170 175  
Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr Pro Ser Pro  
180 185 190  
Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser Gln Ser Arg  
195 200 205  
Glu Ser Gln Cys  
210

<210> 111  
<211> 212  
<212> PRT  
<213> Hepatitis B virus

<220>  
<221> UNSURE  
<222> 28  
<223> Xaa may be any amino acid.

<400> 111  
Met Gln Leu Phe His Leu Cys Leu Ile Ile Ser Cys Ser Cys Pro Thr

1	5	10	15
Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Xaa Asp Met Asp Ile	20	25	30
Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu Ser Phe Leu	35	40	45
Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp Thr Ala Ser	50	55	60
Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys Ser Pro His	65	70	75
His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Asp Leu Ile Thr	85	90	95
Leu Ser Thr Trp Val Gly Gly Asn Leu Glu Asp Pro Thr Ser Arg Asp	100	105	110
Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys Phe Arg Gln	115	120	125
Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg Glu Thr Val	130	135	140
Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr Pro Pro Ala	145	150	155
Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro Glu Thr Thr	165	170	175
Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr Pro Ser Pro	180	185	190
Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Thr Gln Ser Arg	195	200	205
Glu Ser Gln Cys	210		

<210> 112  
 <211> 212  
 <212> PRT  
 <213> Hepatitis B virus

<400> 112
Met Gln Leu Phe His Leu Cys Leu Ile Ile Ser Cys Ser Cys Pro Thr
1 5 10 15
Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Gly Met Asp Ile
20 25 30
Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu Ser Phe Leu
35 40 45
Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp Asn Ala Ser
50 55 60
Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys Ser Pro His



65					70					75					80
His	Thr	Ala	Leu	Arg	Gln	Ala	Ile	Leu	Cys	Trp	Gly	Glu	Leu	Met	Thr
				85					90					95	
Leu	Ala	Thr	Trp	Val	Gly	Val	Asn	Leu	Glu	Asp	Pro	Ala	Ser	Arg	Asp
			100					105					110		
Leu	Val	Val	Ser	Tyr	Val	Asn	Thr	Asn	Met	Gly	Leu	Lys	Phe	Arg	Gln
		115					120					125			
Leu	Leu	Trp	Phe	His	Ile	Ser	Cys	Leu	Thr	Phe	Gly	Arg	Glu	Thr	Val
	130					135					140				
Ile	Glu	Tyr	Leu	Val	Ser	Phe	Gly	Val	Trp	Ile	Arg	Thr	Pro	Pro	Ala
145					150					155					160
Tyr	Arg	Pro	Pro	Asn	Ala	Pro	Ile	Leu	Ser	Thr	Leu	Pro	Glu	Thr	Thr
				165					170					175	
Val	Val	Arg	Arg	Arg	Gly	Arg	Ser	Pro	Arg	Arg	Arg	Thr	Pro	Ser	Pro
			180					185					190		
Arg	Arg	Arg	Arg	Ser	Gln	Ser	Pro	Arg	Arg	Arg	Arg	Ser	Gln	Ser	Arg
		195					200					205			
Glu	Ser	Gln	Cys												
	210														

<210> 113  
<211> 212  
<212> PRT  
<213> Hepatitis B virus

<400> 113															
Met	Gln	Leu	Phe	His	Leu	Cys	Leu	Ile	Ile	Ser	Cys	Ser	Cys	Pro	Thr
1				5					10					15	
Val	Gln	Ala	Ser	Lys	Leu	Cys	Leu	Gly	Trp	Leu	Trp	Gly	Met	Asp	Ile
			20					25					30		
Asp	Pro	Tyr	Lys	Glu	Phe	Gly	Ala	Thr	Val	Glu	Leu	Leu	Ser	Phe	Leu
		35					40					45			
Pro	Ser	Asp	Phe	Phe	Pro	Ser	Val	Arg	Asp	Leu	Leu	Asp	Thr	Ala	Ser
	50					55					60				
Ala	Leu	Tyr	Arg	Glu	Ala	Leu	Glu	Ser	Pro	Glu	His	Cys	Ser	Pro	His
65					70					75					80
His	Thr	Ala	Leu	Arg	Gln	Ala	Ile	Leu	Cys	Trp	Gly	Glu	Leu	Met	Thr
				85					90					95	
Leu	Ala	Thr	Trp	Val	Gly	Val	Asn	Leu	Glu	Asp	Pro	Ala	Ser	Arg	Asp
			100					105					110		
Leu	Val	Val	Ser	Tyr	Val	Asn	Thr	Asn	Met	Gly	Leu	Lys	Phe	Arg	Gln
		115					120					125			

Leu Leu Trp Phe His Ile Cys Cys Leu Thr Phe Gly Arg Glu Thr Val  
130 135 140  
Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr Pro Pro Ala  
145 150 155 160  
Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro Glu Thr Thr  
165 170 175  
Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr Pro Ser Pro  
180 185 190  
Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser Gln Ser Arg  
195 200 205  
Glu Ser Gln Cys  
210

<210> 114  
<211> 212  
<212> PRT  
<213> Hepatitis B virus

<400> 114  
Met Gln Leu Phe His Leu Cys Leu Ile Ile Ser Cys Ser Cys Pro Thr  
1 5 10 15  
Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Gly Met Asp Ile  
20 25 30  
Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu Ser Phe Leu  
35 40 45  
Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp Thr Ala Ser  
50 55 60  
Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys Ser Pro His  
65 70 75 80  
His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu Leu Met Thr  
85 90 95  
Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ala Ser Arg Asp  
100 105 110  
Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys Phe Arg Gln  
115 120 125  
Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg Glu Thr Val  
130 135 140  
Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr Pro Pro Ala  
145 150 155 160  
Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro Glu Thr Thr  
165 170 175  
Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr Pro Ser Pro  
180 185 190

Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser Gln Ser Arg  
195 200 205

Glu Pro Gln Cys  
210

<210> 115  
<211> 212  
<212> PRT  
<213> Hepatitis B virus

<400> 115  
Met Gln Leu Phe His Leu Cys Leu Ile Ile Ser Cys Ser Cys Pro Thr  
1 5 10 15

Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Gly Met Asp Ile  
20 25 30

Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu Ser Phe Leu  
35 40 45

Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Ser Thr Ala Ser  
50 55 60

Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys Ser Pro His  
65 70 75 80

His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu Leu Met Thr  
85 90 95

Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ala Ser Arg Asp  
100 105 110

Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys Phe Arg Gln  
115 120 125

Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg Glu Thr Val  
130 135 140

Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr Pro Pro Ala  
145 150 155 160

Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro Glu Thr Thr  
165 170 175

Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr Pro Ser Pro  
180 185 190

Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser Gln Ser Arg  
195 200 205

Glu Ser Gln Cys  
210

<210> 116  
<211> 212  
<212> PRT  
<213> Hepatitis B virus

<400> 116  
Met Gln Leu Phe His Leu Cys Leu Ile Ile Ser Cys Ser Cys Pro Thr  
1 5 10 15  
Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Gly Met Asp Ile  
20 25 30  
Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu Ser Phe Leu  
35 40 45  
Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp Thr Ala Ser  
50 55 60  
Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys Ser Pro His  
65 70 75 80  
His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu Leu Met Thr  
85 90 95  
Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ala Ser Arg Asp  
100 105 110  
Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys Phe Arg Gln  
115 120 125  
Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg Glu Thr Val  
130 135 140  
Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr Pro Pro Ala  
145 150 155 160  
Tyr Arg Pro Pro Asn Ala Pro Ile Leu Leu Thr Leu Pro Glu Thr Thr  
165 170 175  
Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr Pro Ser Pro  
180 185 190  
Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser Gln Ser Arg  
195 200 205  
Glu Ser Gln Cys  
210

<210> 117  
<211> 212  
<212> PRT  
<213> Hepatitis B virus

<400> 117  
Met Gln Leu Phe His Leu Cys Leu Ile Ile Ser Cys Ser Cys Pro Thr  
1 5 10 15  
Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Gly Met Asp Ile  
20 25 30  
Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu Ser Phe Leu  
35 40 45  
Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp Thr Ala Ser

50		55		60
Ala Leu Tyr Arg Glu	Ala Leu Glu Ser Pro	Glu His Cys Ser Pro	His	
65	70	75	80	
His Thr Ala Leu Arg	Gln Ala Ile Leu Cys	Trp Gly Asp Leu Met	Thr	
	85	90	95	
Leu Ala Thr Trp Val	Gly Val Asn Leu Glu	Asp Pro Ala Ser Arg	Asp	
	100	105	110	
Leu Val Val Ser Tyr	Val Asn Thr Asn Met	Gly Leu Lys Phe Lys	Gln	
	115	120	125	
Leu Leu Trp Phe His	Ile Ser Cys Leu Thr	Phe Gly Arg Glu Thr	Val	
	130	135	140	
Ile Glu Tyr Leu Val	Ser Phe Gly Val Trp	Ile Arg Thr Pro Pro	Ala	
145	150	155	160	
Tyr Arg Pro Pro Asn	Ala Pro Ile Leu Ser	Thr Leu Pro Glu Thr	Thr	
	165	170	175	
Val Val Arg Arg Arg	Gly Arg Ser Pro Arg	Arg Arg Thr Pro Ser	Pro	
	180	185	190	
Arg Arg Arg Arg Ser	Gln Ser Pro Arg Arg	Arg Arg Ser Gln Ser	Arg	
	195	200	205	
Glu Ser Gln Cys				
210				
<210> 118				
<211> 212				
<212> PRT				
<213> Hepatitis B virus				
<400> 118				
Met Gln Leu Phe His	Leu Cys Leu Ile Ile	Ser Cys Ser Cys Pro	Thr	
1	5	10	15	
Val Gln Ala Ser Lys	Leu Cys Leu Gly Trp	Leu Trp Gly Met Asp	Ile	
	20	25	30	
Asp Pro Tyr Lys Glu	Phe Gly Ala Thr Val	Glu Leu Leu Ser Phe	Leu	
	35	40	45	
Pro Ser Asp Phe Phe	Pro Ser Val Arg Asp	Leu Leu Asp Thr Ala	Ala	
	50	55	60	
Ala Leu Tyr Arg Asp	Ala Leu Glu Ser Pro	Glu His Cys Ser Pro	His	
65	70	75	80	
His Thr Ala Leu Arg	Gln Ala Ile Leu Cys	Trp Gly Glu Leu Met	Thr	
	85	90	95	
Leu Ala Thr Trp Val	Gly Thr Asn Leu Glu	Asp Pro Ala Ser Arg	Asp	
	100	105	110	
Leu Val Val Ser Tyr	Val Asn Thr Asn Met	Gly Leu Lys Phe Arg	Gln	

115	120	125
Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg Glu Thr Val		
130	135	140
Leu Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr Pro Pro Ala		
145	150	155
Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro Glu Thr Thr		
	165	170
		175
Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr Pro Ser Pro		
	180	185
		190
Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser Gln Ser Arg		
	195	200
		205
Glu Ser Gln Cys		
210		

<210> 119  
 <211> 183  
 <212> PRT  
 <213> Hepatitis B virus

<400> 119
Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Ser Met Glu Leu Leu
1 5 10 15
Ser Phe Leu Pro Ser Asp Phe Tyr Pro Ser Val Arg Asp Leu Leu Asp
20 25 30
Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys
35 40 45
Thr Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu
50 55 60
Leu Met Thr Leu Ala Thr Trp Val Gly Gly Asn Leu Gln Asp Pro Thr
65 70 75 80
Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys
85 90 95
Phe Arg Gln Leu Leu Trp Phe His Val Ser Cys Leu Thr Phe Gly Arg
100 105 110
Glu Thr Val Val Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr
115 120 125
Pro Gln Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro
130 135 140
Glu Thr Cys Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr
145 150 155 160
Pro Ser Pro Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser
165 170 175
Gln Ser Arg Glu Ser Gln Cys

180

<210> 120  
<211> 183  
<212> PRT  
<213> Hepatitis B virus

<400> 120  
Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu  
1 5 10 15  
Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp  
20 25 30  
Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys  
35 40 45  
Ser Pro His His Thr Ala Leu Arg His Val Phe Leu Cys Trp Gly Asp  
50 55 60  
Leu Met Thr Leu Ala Thr Trp Val Gly Gly Asn Leu Glu Asp Pro Thr  
65 70 75 80  
Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys  
85 90 95  
Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg  
100 105 110  
Glu Thr Val Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr  
115 120 125  
Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro  
130 135 140  
Glu Thr Thr Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr  
145 150 155 160  
Pro Ser Pro Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser  
165 170 175  
Gln Ser Arg Glu Ser Gln Cys  
180

<210> 121  
<211> 212  
<212> PRT  
<213> Hepatitis B virus

<400> 121  
Met Gln Leu Phe His Leu Cys Leu Ile Ile Ser Cys Ser Cys Pro Thr  
1 5 10 15  
Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Gly Met Asp Ile  
20 25 30  
Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu Ser Phe Leu  
35 40 45

Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp Thr Ala Ser  
50 55 60

Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys Ser Pro His  
65 70 75 80

His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Asp Leu Thr Thr  
85 90 95

Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ala Ser Arg Asp  
100 105 110

Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys Phe Arg Gln  
115 120 125

Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg Glu Thr Val  
130 135 140

Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr Pro Pro Ala  
145 150 155 160

Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro Glu Thr Thr  
165 170 175

Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr Pro Ser Pro  
180 185 190

Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser Gln Ser Arg  
195 200 205

Glu Ser Gln Cys  
210

<210> 122  
<211> 212  
<212> PRT  
<213> Hepatitis B virus

<400> 122  
Met Gln Leu Phe His Leu Cys Leu Ile Ile Ser Cys Ser Cys Pro Thr  
1 5 10 15

Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Gly Met Asp Ile  
20 25 30

Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu Ser Phe Leu  
35 40 45

Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp Thr Ala Ser  
50 55 60

Ala Leu Tyr Arg Asp Ala Leu Glu Ser Pro Glu His Cys Ser Pro His  
65 70 75 80

His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu Leu Met Thr  
85 90 95

Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ala Ser Arg Asp  
100 105 110



Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys Phe Arg Gln  
115 120 125

Leu Leu Trp Phe His Ile Ser Cys Leu Ile Phe Gly Arg Glu Thr Val  
130 135 140

Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr Pro Pro Ala  
145 150 155 160

Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro Glu Thr Thr  
165 170 175

Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr Pro Ser Pro  
180 185 190

Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser Gln Ser Arg  
195 200 205

Glu Ser Gln Cys  
210

<210> 123  
<211> 183  
<212> PRT  
<213> Hepatitis B virus

<400> 123  
Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu  
1 5 10 15

Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp  
20 25 30

Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys  
35 40 45

Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Asp  
50 55 60

Leu Met Thr Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Pro Val  
65 70 75 80

Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn Val Gly Leu Lys  
85 90 95

Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg  
100 105 110

Glu Thr Val Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr  
115 120 125

Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro  
130 135 140

Glu Thr Thr Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr  
145 150 155 160

Pro Ser Pro Ala Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser  
165 170 175

Gln Ser Arg Glu Ser Gln Cys  
180

<210> 124  
<211> 212  
<212> PRT  
<213> Hepatitis B virus

<400> 124  
Met Gln Leu Phe His Leu Cys Leu Ile Ile Ser Cys Ser Cys Pro Thr  
1 5 10 15  
Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Gly Met Asp Ile  
20 25 30  
Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu Ser Phe Leu  
35 40 45  
Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp Thr Ala Ser  
50 55 60  
Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys Ser Pro His  
65 70 75 80  
His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Asp Leu Met Asn  
85 90 95  
Leu Ala Thr Trp Val Gly Gly Asn Leu Glu Asp Pro Val Ser Arg Asp  
100 105 110  
Leu Val Val Gly Tyr Val Asn Thr Thr Val Gly Leu Lys Phe Arg Gln  
115 120 125  
Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg Glu Thr Val  
130 135 140  
Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr Pro Pro Ala  
145 150 155 160  
Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro Glu Thr Thr  
165 170 175  
Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr Pro Ser Pro  
180 185 190  
Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser Gln Ser Arg  
195 200 205  
Glu Ser Gln Cys  
210

<210> 125  
<211> 183  
<212> PRT  
<213> Hepatitis B virus

<400> 125  
Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu  
1 5 10 15

Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp  
20 25 30

Thr Ala Ser Ala Leu Tyr Arg Asp Ala Leu Glu Ser Pro Glu His Cys  
35 40 45

Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Asp  
50 55 60

Leu Met Thr Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ala  
65 70 75 80

Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys  
85 90 95

Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg  
100 105 110

Glu Thr Val Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr  
115 120 125

Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro  
130 135 140

Glu Thr Thr Val Val Arg Arg Arg Gly Arg Thr Pro Arg Arg Arg Thr  
145 150 155 160

Pro Ser Pro Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser  
165 170 175

Gln Ser Arg Glu Ser Gln Cys  
180

<210> 126

<211> 212

<212> PRT

<213> Hepatitis B virus

<400> 126

Met Gln Leu Phe His Leu Cys Leu Ile Ile Ser Cys Ser Cys Pro Thr  
1 5 10 15

Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Gly Met Asp Ile  
20 25 30

Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu Ser Phe Leu  
35 40 45

Pro Ser Asp Phe Phe Pro Ser Val Arg Ala Leu Leu Asp Thr Ala Ser  
50 55 60

Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys Ser Pro His  
65 70 75 80

His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu Leu Met Thr  
85 90 95

Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ala Ser Arg Asp  
100 105 110

Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys Phe Arg Gln  
115 120 125

Ile Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg Glu Thr Val  
130 135 140

Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr Pro Pro Ala  
145 150 155 160

Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro Glu Thr Thr  
165 170 175

Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr Pro Ser Pro  
180 185 190

Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser Gln Ser Arg  
195 200 205

Glu Ser Gln Cys  
210

<210> 127  
<211> 212  
<212> PRT  
<213> Hepatitis B virus

<400> 127  
Met Gln Leu Phe His Leu Cys Leu Ile Ile Ser Cys Ser Cys Pro Thr  
1 5 10 15

Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Gly Met Asp Ile  
20 25 30

Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu Ser Phe Leu  
35 40 45

Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp Thr Ala Ser  
50 55 60

Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys Ser Pro His  
65 70 75 80

His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Asp Leu Met Thr  
85 90 95

Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ala Thr Arg Asp  
100 105 110

Leu Val Val Ser Tyr Val Asn Thr Asn Val Gly Leu Lys Phe Arg Gln  
115 120 125

Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg Glu Thr Val  
130 135 140

Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr Pro Pro Ala  
145 150 155 160

Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro Glu Thr Thr  
165 170 175

Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr Pro Ser Pro  
180 185 190

Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser Gln Ser Arg  
195 200 205

Glu Ser Gln Cys  
210

<210> 128

<211> 212

<212> PRT

<213> Hepatitis B virus

<400> 128

Met Gln Leu Phe His Leu Cys Leu Ile Ile Ser Cys Ser Cys Pro Thr  
1 5 10 15

Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Gly Met Asp Ile  
20 25 30

Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu Ser Phe Leu  
35 40 45

Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp Thr Ala Ser  
50 55 60

Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys Ser Pro His  
65 70 75 80

His Thr Ala Leu Arg Gln Arg Ile Leu Cys Trp Gly Glu Leu Met Thr  
85 90 95

Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ala Ser Arg Asp  
100 105 110

Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys Phe Arg Gln  
115 120 125

Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg Glu Thr Val  
130 135 140

Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr Pro Pro Ala  
145 150 155 160

Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro Glu Thr Thr  
165 170 175

Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr Pro Ser Pro  
180 185 190

Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Thr Arg Ser Gln Ser Arg  
195 200 205

Glu Ser Gln Cys  
210

<210> 129  
<211> 212  
<212> PRT  
<213> Hepatitis B virus

<400> 129  
Met Gln Leu Phe His Leu Cys Leu Val Ile Ser Cys Ser Cys Pro Thr  
1 5 10 15  
Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Gly Met Asp Ile  
20 25 30  
Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu Ser Phe Leu  
35 40 45  
Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp Thr Ala Ala  
50 55 60  
Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys Ser Pro His  
65 70 75 80  
His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu Leu Met Thr  
85 90 95  
Leu Ala Thr Trp Val Gly Asn Asn Leu Glu Asp Pro Ala Ser Arg Asp  
100 105 110  
Leu Val Val Asn Tyr Val Asn Thr Asn Met Gly Leu Lys Ile Arg Gln  
115 120 125  
Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg Glu Thr Val  
130 135 140  
Leu Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr Pro Pro Ala  
145 150 155 160  
Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro Glu Thr Thr  
165 170 175  
Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr Pro Ser Pro  
180 185 190  
Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser Gln Ser Arg  
195 200 205  
Glu Ser Gln Cys  
210

<210> 130  
<211> 212  
<212> PRT  
<213> Hepatitis B virus

<400> 130  
Met Gln Leu Phe His Leu Cys Leu Ile Ile Ser Cys Ser Cys Pro Thr  
1 5 10 15  
Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Gly Met Asp Ile  
20 25 30

Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu Ser Phe Leu  
                   35                                  40                                  45  
 Pro Ser Ala Phe Phe Pro Ser Val Arg Asp Leu Leu Asp Thr Ala Ser  
                   50                                  55                                  60  
 Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys Ser Pro His  
                   65                                  70                                  75                                  80  
 His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Asp Leu Met Thr  
                                   85                                  90                                  95  
 Leu Ala Thr Trp Val Gly Val Asn Leu Glu Asp Pro Ala Ser Arg Asp  
                                   100                                  105                                  110  
 Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys Phe Arg Gln  
                                   115                                  120                                  125  
 Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg Glu Thr Val  
                   130                                  135                                  140  
 Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr Pro Pro Ala  
                   145                                  150                                  155                                  160  
 Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro Glu Thr Thr  
                                   165                                  170                                  175  
 Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr Pro Ser Pro  
                                   180                                  185                                  190  
 Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser Gln Ser Arg  
                   195                                  200                                  205  
 Glu Ser Gln Cys  
                   210

<210> 131  
 <211> 183  
 <212> PRT  
 <213> Hepatitis B virus

<400> 131  
 Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu  
                   1                                  5                                  10                                  15  
 Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp  
                                   20                                  25                                  30  
 Thr Ala Ala Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys  
                   35                                  40                                  45  
 Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu  
                   50                                  55                                  60  
 Leu Met Thr Leu Ala Thr Trp Val Gly Asn Asn Leu Glu Asp Pro Ala  
                   65                                  70                                  75                                  80  
 Ser Arg Asp Leu Val Val Asn Tyr Val Asn Thr Asn Met Gly Leu Lys  
                                   85                                  90                                  95

Ile Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg  
100 105 110  
Glu Thr Val Leu Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr  
115 120 125  
Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro  
130 135 140  
Glu Thr Thr Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr  
145 150 155 160  
Pro Ser Pro Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser  
165 170 175  
Gln Ser Arg Glu Ser Gln Cys  
180

<210> 132  
<211> 183  
<212> PRT  
<213> Hepatitis B virus

<400> 132  
Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu  
1 5 10 15  
Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp  
20 25 30  
Thr Ala Ser Ala Leu Tyr Arg Glu Ala Leu Glu Ser Pro Glu His Cys  
35 40 45  
Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu  
50 55 60  
Leu Met Thr Leu Ala Thr Trp Val Gly Gly Asn Leu Glu Asp Pro Ile  
65 70 75 80  
Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn Met Gly Leu Lys  
85 90 95  
Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg  
100 105 110  
Glu Thr Val Ile Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr  
115 120 125  
Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro  
130 135 140  
Glu Thr Cys Val Val Arg Arg Arg Gly Arg Ser Pro Arg Arg Arg Thr  
145 150 155 160  
Pro Ser Pro Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg Arg Ser  
165 170 175  
Gln Ser Arg Gly Ser Gln Cys  
180



<210> 133  
<211> 3221  
<212> DNA  
<213> Hepatitis B virus

<220>  
<221> CDS  
<222> (1901)..(2458)

<400> 133  
ttccactgcc ttccaccaag ctctgcagga cccagagtc aggggtctgt attttctctgc 60  
tggtggctcc agttcaggaa cagtaaacc tgctccgaat attgcctctc acatctctgc 120  
aatctccgcg aggactgggg accctgtgac gaacatggag aacatcacat caggattcct 180  
aggacccctg ctctgtttac aggcgggggt tttattgttg acaagaatcc tcacaatacc 240  
gcagagtcta gactcgtggg ggacttctct caattttata gggggatcac cctgtgtgtct 300  
tggccaaaat tcgcagtccc caacctccaa tctctacca acctcctgtc ctccaatttg 360  
tcctgggttat cgctggatgt gtctgcggcg ttttatcata ttctcttca tctgtgtgtct 420  
atgcctcatc ttcttattgg ttcttctgga ttatcaagg atgttgccc tttgtcctct 480  
aattccagga tcaacaacaa ccagtacggg accatgcaa acctgcacga ctctgtctca 540  
aggcaactct atgtttccct catgttgctg taaaaacct acggttgga attgcacctg 600  
tattcccatc ccatcgtcct gggttttcgc aaaataccta tgggagtggg cctcagtccg 660  
tttctcttgg ctcagtttac tagtgccatt tgttcagtgg ttcgtagggc tttccccac 720  
tgtttggtt tcagctatat ggatgatgtg gtattggggg ccaagtctgt acagcatcgt 780  
gagtcctttt ataccgtgt taccaatttt cttttgtctc tgggtataca tttaaaccct 840  
aacaaaacaa aaagatgggg ttattcccta aacttcatgg gttacataat tggaagttgg 900  
ggaacattgc cacaggatca tattgtacaa aagatcaaac actgttttag aaaacttct 960  
gttaacaggg ctattgattg gaaagtatgt caaagaattg tgggtctttt gggctttgct 1020  
gtccatttta cacaatgtgg atatcctgcc ttaatgcctt tgtatgcatg tatacaggct 1080  
aaacaggctt tcactttctc gccaaacttac aaggcctttc taagtaaaca gtacatgaac 1140  
ctttaccccg ttgctcggca acggcctggg ctgtgccaag tgtttgctga cgcaaccccc 1200  
actggttggg gcttggccat aggccatcag cgcattgagt gaacctttgt ggctcctctg 1260  
ccgatccata ctgcggaact cctagccgct tgtattgtct gcagccggtc tggagcaaag 1320  
ctcatcgga ctgacaattc tgcgtcctc tcgcggaaat atacatcgtt tccatggctg 1380  
ctaggctgta ctgccaactg gatccttcgc gggacgtcct ttgtttacgt cccgtcggcg 1440  
ctgaatcccg cggacgacct ctctcggggc cgcttgggac tctatcgtcc cttctctcgt 1500  
ctgccgttcc agccgaccac ggggcgcacc tctctttacg cggctctccc gtctgtgcct 1560



185

tattcctcta cagtacctat ctttaatcct gaatggcaaa ctccttcctt tcctaagatt 2558  
catttacaag aggacattat tgataggtgt caacaatttg tgggccctct cactgtaaat 2618  
gaaaagagaa gattgaaatt aattatgcct gctagattct atcctacca cactaaatat 2678  
ttgcccttag acaaaggaat taaaccttat tatccagatc aggtagttaa tcattacttc 2738  
caaaccagac attattttaca tactcttttg aaggctggta ttctatataa gagggaaacc 2798  
acacgtagcg catcattttg cgggtcacca tattcttggg aacaagagct acagcatggg 2858  
aggttgggtca ttaaaacctc gcaaaggcat ggggacgaat ctttctgttc ccaacctct 2918  
gggattcttt cccgatcatc agttggaccc tgcattcgga gccaaactcaa acaatccaga 2978  
ttggggacttc aaccccatca aggaccactg gccagcagcc aaccaggtag gagtgggagc 3038  
attcggggcca ggggtcaccc ctccacacgg cggtattttg ggggtggagcc ctccaggctca 3098  
gggcatattg accacagtgt caacaattcc tcctcctgcc tccaccaatc ggcagtcagg 3158  
aaggcagcct actcccatct ctccacctct aagagacagt catcctcagg ccatgcagtg 3218  
gaa 3221

<210> 134

<211> 185

<212> PRT

<213> Hepatitis B virus

<400> 134

Met	Asp	Ile	Asp	Pro	Tyr	Lys	Glu	Phe	Gly	Ala	Thr	Val	Glu	Leu	Leu
1				5					10					15	
Ser	Phe	Leu	Pro	Ser	Asp	Phe	Phe	Pro	Ser	Val	Arg	Asp	Leu	Leu	Asp
			20					25					30		
Thr	Ala	Ser	Ala	Leu	Tyr	Arg	Glu	Ala	Leu	Glu	Ser	Pro	Glu	His	Cys
			35				40					45			
Ser	Pro	His	His	Thr	Ala	Leu	Arg	Gln	Ala	Ile	Leu	Cys	Trp	Gly	Glu
	50					55					60				
Leu	Met	Thr	Leu	Ala	Thr	Trp	Val	Gly	Asn	Asn	Leu	Glu	Asp	Pro	Ala
	65				70					75				80	
Ser	Arg	Asp	Leu	Val	Val	Asn	Tyr	Val	Asn	Thr	Asn	Met	Gly	Leu	Lys
				85					90					95	
Ile	Arg	Gln	Leu	Leu	Trp	Phe	His	Ile	Ser	Cys	Leu	Thr	Phe	Gly	Arg
			100					105						110	
Glu	Thr	Val	Leu	Glu	Tyr	Leu	Val	Ser	Phe	Gly	Val	Trp	Ile	Arg	Thr
		115					120						125		
Pro	Pro	Ala	Tyr	Arg	Pro	Pro	Asn	Ala	Pro	Ile	Leu	Ser	Thr	Leu	Pro
		130				135					140				
Glu	Thr	Thr	Val	Val	Arg	Arg	Arg	Asp	Arg	Gly	Arg	Ser	Pro	Arg	Arg
					150					155				160	
Arg	Thr	Pro	Ser	Pro	Arg	Arg	Arg	Arg	Ser	Gln	Ser	Pro	Arg	Arg	Arg
				165					170					175	
Arg	Ser	Gln	Ser	Arg	Glu	Ser	Gln	Cys							
			180					185							

<210> 135  
<211> 188  
<212> PRT  
<213> Woodchuck hepatitis B virus

<400> 135  
Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ser Ser Tyr Gln Leu Leu  
1 5 10 15  
Asn Phe Leu Pro Leu Asp Phe Phe Pro Asp Leu Asn Ala Leu Val Asp  
20 25 30  
Thr Ala Thr Ala Leu Tyr Glu Glu Glu Leu Thr Gly Arg Glu His Cys  
35 40 45  
Ser Pro His His Thr Ala Ile Arg Gln Ala Leu Val Cys Trp Asp Glu  
50 55 60  
Leu Thr Lys Leu Ile Ala Trp Met Ser Ser Asn Ile Thr Ser Glu Gln  
65 70 75 80  
Val Arg Thr Ile Ile Val Asn His Val Asn Asp Thr Trp Gly Leu Lys  
85 90 95  
Val Arg Gln Ser Leu Trp Phe His Leu Ser Cys Leu Thr Phe Gly Gln  
100 105 110  
His Thr Val Gln Glu Phe Leu Val Ser Phe Gly Val Trp Ile Arg Thr  
115 120 125  
Pro Ala Pro Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro  
130 135 140  
Glu His Thr Val Ile Arg Arg Arg Gly Gly Ala Arg Ala Ser Arg Ser  
145 150 155 160  
Pro Arg Arg Arg Thr Pro Ser Pro Arg Arg Arg Ser Gln Ser Pro  
165 170 175  
Arg Arg Arg Arg Ser Gln Ser Pro Ser Thr Asn Cys  
180 185

<210> 136  
<211> 217  
<212> PRT  
<213> Ground squirrel hepatitis virus .

<400> 136  
Met Tyr Leu Phe His Leu Cys Leu Val Phe Ala Cys Val Pro Cys Pro  
1 5 10 15  
Thr Val Gln Ala Ser Lys Leu Cys Leu Gly Trp Leu Trp Asp Met Asp  
20 25 30  
Ile Asp Pro Tyr Lys Glu Phe Gly Ser Ser Tyr Gln Leu Leu Asn Phe  
35 40 45  
Leu Pro Leu Asp Phe Phe Pro Asp Leu Asn Ala Leu Val Asp Thr Ala  
50 55 60

Ala Ala Leu Tyr Glu Glu Glu Leu Thr Gly Arg Glu His Cys Ser Pro  
65 70 75 80

His His Thr Ala Ile Arg Gln Ala Leu Val Cys Trp Glu Glu Leu Thr  
85 90 95

Arg Leu Ile Thr Trp Met Ser Glu Asn Thr Thr Glu Glu Val Arg Arg  
100 105 110

Ile Ile Val Asp His Val Asn Asn Thr Trp Gly Leu Lys Val Arg Gln  
115 120 125

Thr Leu Trp Phe His Leu Ser Cys Leu Thr Phe Gly Gln His Thr Val  
130 135 140

Gln Glu Phe Leu Val Ser Phe Gly Val Trp Ile Arg Thr Pro Ala Pro  
145 150 155 160

Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro Glu His Thr  
165 170 175

Val Ile Arg Arg Arg Gly Gly Ser Arg Ala Ala Arg Ser Pro Arg Arg  
180 185 190

Arg Thr Pro Ser Pro Arg Arg Arg Arg Ser Gln Ser Pro Arg Arg Arg  
195 200 205

Arg Ser Gln Ser Pro Ala Ser Asn Cys  
210 215

<210> 137

<211> 262

<212> PRT

<213> Snow Goose Hepatitis B Virus

<400> 137

Met Asp Val Asn Ala Ser Arg Ala Leu Ala Asn Val Tyr Asp Leu Pro  
1 5 10 15

Asp Asp Phe Phe Pro Lys Ile Glu Asp Leu Val Arg Asp Ala Lys Asp  
20 25 30

Ala Leu Glu Pro Tyr Trp Lys Ser Asp Ser Ile Lys Lys His Val Leu  
35 40 45

Ile Ala Thr His Phe Val Asp Leu Ile Glu Asp Phe Trp Gln Thr Thr  
50 55 60

Gln Gly Met His Glu Ile Ala Glu Ala Ile Arg Ala Val Ile Pro Pro  
65 70 75 80

Thr Thr Ala Pro Val Pro Ser Gly Tyr Leu Ile Gln His Asp Glu Ala  
85 90 95

Glu Glu Ile Pro Leu Gly Asp Leu Phe Lys Glu Gln Glu Glu Arg Ile  
100 105 110

Val Ser Phe Gln Pro Asp Tyr Pro Ile Thr Ala Arg Ile His Ala His  
115 120 125

Leu Lys Ala Tyr Ala Lys Ile Asn Glu Glu Ser Leu Asp Arg Ala Arg  
130 135 140

Arg Leu Leu Trp Trp His Tyr Asn Cys Leu Leu Trp Gly Glu Ala Thr  
145 150 155 160

Val Thr Asn Tyr Ile Ser Arg Leu Arg Thr Trp Leu Ser Thr Pro Glu  
165 170 175

Lys Tyr Arg Gly Arg Asp Ala Pro Thr Ile Glu Ala Ile Thr Arg Pro  
180 185 190

Ile Gln Val Ala Gln Gly Gly Arg Lys Thr Ser Thr Ala Thr Arg Lys  
195 200 205

Pro Arg Gly Leu Glu Pro Arg Arg Arg Lys Val Lys Thr Thr Val Val  
210 215 220

Tyr Gly Arg Arg Arg Ser Lys Ser Arg Glu Arg Arg Ala Ser Ser Pro  
225 230 235 240

Gln Arg Ala Gly Ser Pro Leu Pro Arg Ser Ser Ser Ser His His Arg  
245 250 255

Ser Pro Ser Pro Arg Lys  
260

<210> 138  
<211> 305  
<212> PRT  
<213> Duck hepatitis B virus

<400> 138  
Met Trp Asp Leu Arg Leu His Pro Ser Pro Phe Gly Ala Ala Cys Gln  
1 5 10 15

Gly Ile Phe Thr Ser Ser Leu Leu Leu Phe Leu Val Thr Val Pro Leu  
20 25 30

Val Cys Thr Ile Val Tyr Asp Ser Cys Leu Cys Met Asp Ile Asn Ala  
35 40 45

Ser Arg Ala Leu Ala Asn Val Tyr Asp Leu Pro Asp Asp Phe Phe Pro  
50 55 60

Lys Ile Asp Asp Leu Val Arg Asp Ala Lys Asp Ala Leu Glu Pro Tyr  
65 70 75 80

Trp Arg Asn Asp Ser Ile Lys Lys His Val Leu Ile Ala Thr His Phe  
85 90 95

Val Asp Leu Ile Glu Asp Phe Trp Gln Thr Thr Gln Gly Met His Glu  
100 105 110

Ile Ala Glu Ala Leu Arg Ala Ile Ile Pro Ala Thr Thr Ala Pro Val  
115 120 125

Pro Gln Gly Phe Leu Val Gln His Glu Glu Ala Glu Glu Ile Pro Leu  
130 135 140

Gly	Glu	Leu	Phe	Arg	Tyr	Gln	Glu	Glu	Arg	Leu	Thr	Asn	Phe	Gln	Pro
145					150					155					160
Asp	Tyr	Pro	Val	Thr	Ala	Arg	Ile	His	Ala	His	Leu	Lys	Ala	Tyr	Ala
				165					170					175	
Lys	Ile	Asn	Glu	Glu	Ser	Leu	Asp	Arg	Ala	Arg	Arg	Leu	Leu	Trp	Trp
			180					185					190		
His	Tyr	Asn	Cys	Leu	Leu	Trp	Gly	Glu	Pro	Asn	Val	Thr	Asn	Tyr	Ile
		195					200					205			
Ser	Arg	Leu	Arg	Thr	Trp	Leu	Ser	Thr	Pro	Glu	Lys	Tyr	Arg	Gly	Lys
	210					215					220				
Asp	Ala	Pro	Thr	Ile	Glu	Ala	Ile	Thr	Arg	Pro	Ile	Gln	Val	Ala	Gln
225					230					235					240
Gly	Gly	Arg	Asn	Lys	Thr	Gln	Gly	Val	Arg	Lys	Ser	Arg	Gly	Leu	Glu
			245						250					255	
Pro	Arg	Arg	Arg	Arg	Val	Lys	Thr	Thr	Ile	Val	Tyr	Gly	Arg	Arg	Arg
			260						265				270		
Ser	Lys	Ser	Arg	Glu	Arg	Arg	Ala	Pro	Thr	Pro	Gln	Arg	Ala	Gly	Ser
		275					280					285			
Pro	Leu	Pro	Arg	Thr	Ser	Arg	Asp	His	His	Arg	Ser	Pro	Ser	Pro	Arg
	290					295					300				
Glu															
305															
<210>	139														
<211>	212														
<212>	PRT														
<213>	Haemophilus influenzae														
<400>	139														
Met	Lys	Lys	Thr	Leu	Leu	Gly	Ser	Leu	Ile	Leu	Leu	Ala	Phe	Ala	Gly
1				5					10				15		
Asn	Val	Gln	Ala	Ala	Ala	Asn	Ala	Asp	Thr	Ser	Gly	Thr	Val	Thr	Phe
			20					25					30		
Phe	Gly	Lys	Val	Val	Glu	Asn	Thr	Cys	Gln	Val	Asn	Gln	Asp	Ser	Glu
		35					40					45			
Tyr	Glu	Cys	Asn	Leu	Asn	Asp	Val	Gly	Lys	Asn	His	Leu	Ser	Gln	Gln
	50					55					60				
Gly	Tyr	Thr	Ala	Met	Gln	Thr	Pro	Phe	Thr	Ile	Thr	Leu	Glu	Asn	Cys
65					70					75				80	
Asn	Val	Thr	Thr	Thr	Asn	Asn	Lys	Pro	Lys	Ala	Thr	Lys	Val	Gly	Val
				85					90					95	
Tyr	Phe	Tyr	Ser	Trp	Glu	Ile	Ala	Asp	Lys	Asp	Asn	Lys	Tyr	Thr	Leu
			100					105					110		

Lys Asn Ile Lys Glu Asn Thr Gly Thr Asn Asp Ser Ala Asn Lys Val  
 115 120 125

Asn Ile Gln Leu Leu Glu Asp Asn Gly Thr Ala Glu Ile Lys Val Val  
 130 135 140

Gly Lys Thr Thr Thr Asp Phe Thr Ser Glu Asn His Asn Gly Ala Gly  
 145 150 155 160

Ala Asp Pro Val Ala Thr Asn Lys His Ile Ser Ser Leu Thr Pro Leu  
 165 170 175

Asn Asn Gln Asn Ser Ile Asn Leu His Tyr Ile Ala Gln Tyr Tyr Ala  
 180 185 190

Thr Gly Val Ala Glu Ala Gly Lys Val Pro Ser Ser Val Asn Ser Gln  
 195 200 205

Ile Ala Tyr Glu  
 210

<210> 140  
 <211> 139  
 <212> PRT  
 <213> Pseudomonas stutzeri

<400> 140  
 Met Lys Ala Gln Met Gln Lys Gly Phe Thr Leu Ile Glu Leu Met Ile  
 1 5 10 15

Val Val Ala Ile Ile Gly Ile Leu Ala Ala Ile Ala Leu Pro Ala Tyr  
 20 25 30

Gln Asp Tyr Thr Val Arg Ser Asn Ala Ala Ala Ala Leu Ala Glu Ile  
 35 40 45

Thr Pro Gly Lys Ile Gly Phe Glu Gln Ala Ile Asn Glu Gly Lys Thr  
 50 55 60

Pro Ser Leu Thr Ser Thr Asp Glu Gly Tyr Ile Gly Ile Thr Asp Ser  
 65 70 75 80

Thr Ser Tyr Cys Asp Val Asp Leu Asp Thr Ala Ala Asp Gly His Ile  
 85 90 95

Glu Cys Thr Ala Lys Gly Gly Asn Ala Gly Lys Phe Asp Gly Lys Thr  
 100 105 110

Ile Thr Leu Asn Arg Thr Ala Asp Gly Glu Trp Ser Cys Ala Ser Thr  
 115 120 125

Leu Asp Ala Lys Tyr Lys Pro Gly Lys Cys Ser  
 130 135

<210> 141  
 <211> 59  
 <212> PRT  
 <213> Caulobacter crescentus



<400> 141  
Met Thr Lys Phe Val Thr Arg Phe Leu Lys Asp Glu Ser Gly Ala Thr  
1 5 10 15  
Ala Ile Glu Tyr Gly Leu Ile Val Ala Leu Ile Ala Val Val Ile Val  
20 25 30  
Thr Ala Val Thr Thr Leu Gly Thr Asn Leu Arg Thr Ala Phe Thr Lys  
35 40 45  
Ala Gly Ala Ala Val Ser Thr Ala Ala Gly Thr  
50 55

<210> 142  
<211> 173  
<212> PRT  
<213> Escherichia coli

<400> 142  
Met Ala Val Val Ser Phe Gly Val Asn Ala Ala Pro Thr Ile Pro Gln  
1 5 10 15  
Gly Gln Gly Lys Val Thr Phe Asn Gly Thr Val Val Asp Ala Pro Cys  
20 25 30  
Ser Ile Ser Gln Lys Ser Ala Asp Gln Ser Ile Asp Phe Gly Gln Leu  
35 40 45  
Ser Lys Ser Phe Leu Glu Ala Gly Gly Val Ser Lys Pro Met Asp Leu  
50 55 60  
Asp Ile Glu Leu Val Asn Cys Asp Ile Thr Ala Phe Lys Gly Gly Asn  
65 70 75 80  
Gly Ala Gln Lys Gly Thr Val Lys Leu Ala Phe Thr Gly Pro Ile Val  
85 90 95  
Asn Gly His Ser Asp Glu Leu Asp Thr Asn Gly Gly Thr Gly Thr Ala  
100 105 110  
Ile Val Val Gln Gly Ala Gly Lys Asn Val Val Phe Asp Gly Ser Glu  
115 120 125  
Gly Asp Ala Asn Thr Leu Lys Asp Gly Glu Asn Val Leu His Tyr Thr  
130 135 140  
Ala Val Val Lys Lys Ser Ser Ala Val Gly Ala Ala Val Thr Glu Gly  
145 150 155 160  
Ala Phe Ser Ala Val Ala Asn Phe Asn Leu Thr Tyr Gln  
165 170

<210> 143  
<211> 173  
<212> PRT  
<213> Escherichia coli

<400> 143

Met Ala Val Val Ser Phe Gly Val Asn Ala Ala Pro Thr Ile Pro Gln  
1 5 10 15  
Gly Gln Gly Lys Val Thr Phe Asn Gly Thr Val Val Asp Ala Pro Cys  
20 25 30  
Ser Ile Ser Gln Lys Ser Ala Asp Gln Ser Ile Asp Phe Gly Gln Leu  
35 40 45  
Ser Lys Ser Phe Leu Glu Ala Gly Gly Val Ser Lys Pro Met Asp Leu  
50 55 60  
Asp Ile Glu Leu Val Asn Cys Asp Ile Thr Ala Phe Lys Gly Gly Asn  
65 70 75 80  
Gly Ala Gln Lys Gly Thr Val Lys Leu Ala Phe Thr Gly Pro Ile Val  
85 90 95  
Asn Gly His Ser Asp Glu Leu Asp Thr Asn Gly Gly Thr Gly Thr Ala  
100 105 110  
Ile Val Val Gln Gly Ala Gly Lys Asn Val Val Phe Asp Gly Ser Glu  
115 120 125  
Gly Asp Ala Asn Thr Leu Lys Asp Gly Glu Asn Val Leu His Tyr Thr  
130 135 140  
Ala Val Val Lys Lys Ser Ser Ala Val Gly Ala Ala Val Thr Glu Gly  
145 150 155 160  
Ala Phe Ser Ala Val Ala Asn Phe Asn Leu Thr Tyr Gln  
165 170

<210> 144

<211> 172

<212> PRT

<213> Escherichia coli

<400> 144

Met Ala Val Val Ser Phe Gly Val Asn Ala Ala Pro Thr Thr Pro Gln  
1 5 10 15  
Gly Gln Gly Arg Val Thr Phe Asn Gly Thr Val Val Asp Ala Pro Cys  
20 25 30  
Ser Ile Ser Gln Lys Ser Ala Asp Gln Ser Ile Asp Phe Gly Gln Leu  
35 40 45  
Ser Lys Ser Phe Leu Ala Asn Asp Gly Gln Ser Lys Pro Met Asn Leu  
50 55 60  
Asp Ile Glu Leu Val Asn Cys Asp Ile Thr Ala Phe Lys Asn Gly Asn  
65 70 75 80  
Ala Lys Thr Gly Ser Val Lys Leu Ala Phe Thr Gly Pro Thr Val Ser  
85 90 95  
Gly His Pro Ser Glu Leu Ala Thr Asn Gly Gly Pro Gly Thr Ala Ile  
100 105 110  
Met Ile Gln Ala Ala Gly Lys Asn Val Pro Phe Asp Gly Thr Glu Gly

115	120	125
Asp Pro Asn Leu Leu Lys	Asp Gly Asp Asn Val	Leu His Tyr Thr Thr
130	135	140
Val Gly Lys Lys Ser Ser	Asp Gly Asn Ala Gln	Ile Thr Glu Gly Ala
145	150	155
Phe Ser Gly Val Ala Thr	Phe Asn Leu Ser Tyr	Gln
165	170	

<210> 145  
 <211> 853  
 <212> DNA  
 <213> Escherichia coli

<220>  
 <221> CDS  
 <222> (281)..(829)

<400> 145  
 acgtttctgt ggtctgacgc atcttctctca ttcttctctc caaaaaccac ctcatgcaat 60  
 ataaacatct ataaataaag ataacaaata gaattattaag ccaacaaata aactgaaaaa 120  
 gtttggtccgc gatgctttac ctctatgagt caaaatggcc ccaatgtttc atcttttggg 180  
 ggaaactgtg cagtgttggc agtcaaactc gttgacaaac aaagtgtaca gaacgactgc 240  
 ccatgtcgat ttagaaatag ttttttgaaa ggaaagcagc atg aaa att aaa act 295  
 Met Lys Ile Lys Thr  
 1 5

ctg gca atc gtt gtt ctg tcg gct ctg tcc ctc agt tct acg acg gct 343  
 Leu Ala Ile Val Val Leu Ser Ala Leu Ser Leu Ser Ser Thr Thr Ala  
 10 15 20

ctg gcc gct gcc acg acg gtt aat ggt ggg acc gtt cac ttt aaa ggg 391  
 Leu Ala Ala Ala Thr Thr Val Asn Gly Gly Thr Val His Phe Lys Gly  
 25 30 35

gaa gtt gtt aac gcc gct tgc gca gtt gat gca ggc tct gtt gat caa 439  
 Glu Val Val Asn Ala Ala Cys Ala Val Asp Ala Gly Ser Val Asp Gln  
 40 45 50

acc gtt cag tta gga cag gtt cgt acc gca tcg ctg gca cag gaa gga 487  
 Thr Val Gln Leu Gly Gln Val Arg Thr Ala Ser Leu Ala Gln Glu Gly  
 55 60 65

gca acc agt tct gct gtc ggt ttt aac att cag ctg aat gat tgc gat 535  
 Ala Thr Ser Ser Ala Val Gly Phe Asn Ile Gln Leu Asn Asp Cys Asp  
 70 75 80 85

acc aat gtt gca tct aaa gcc gct gtt gcc ttt tta ggt acg gcg att 583  
 Thr Asn Val Ala Ser Lys Ala Ala Val Ala Phe Leu Gly Thr Ala Ile  
 90 95 100

gat gcg ggt cat acc aac gtt ctg gct ctg cag agt tca gct gcg ggt 631  
 Asp Ala Gly His Thr Asn Val Leu Ala Leu Gln Ser Ser Ala Ala Gly  
 105 110 115

agc gca aca aac gtt ggt gtg cag atc ctg gac aga acg ggt gct gcg 679  
 Ser Ala Thr Asn Val Gly Val Gln Ile Leu Asp Arg Thr Gly Ala Ala  
           120                          125                          130

ctg acg ctg gat ggt gcg aca ttt agt tca gaa aca acc ctg aat aac 727  
 Leu Thr Leu Asp Gly Ala Thr Phe Ser Ser Glu Thr Thr Leu Asn Asn  
           135                          140                          145

gga acc aat acc att ccg ttc cag gcg cgt tat ttt gca acc ggg gcc 775  
 Gly Thr Asn Thr Ile Pro Phe Gln Ala Arg Tyr Phe Ala Thr Gly Ala  
           150                          155                          160                          165

gca acc ccg ggt gct gct aat gcg gat gcg acc ttc aag gtt cag tat 823  
 Ala Thr Pro Gly Ala Ala Asn Ala Asp Ala Thr Phe Lys Val Gln Tyr  
                           170                          175                          180

caa taa cctacctagg ttcagggacg ttca 853  
 Gln

<210> 146  
 <211> 182  
 <212> PRT  
 <213> Escherichia coli

<400> 146  
 Met Lys Ile Lys Thr Leu Ala Ile Val Val Leu Ser Ala Leu Ser Leu  
   1                          5                          10                          15  
 Ser Ser Thr Thr Ala Leu Ala Ala Ala Thr Thr Val Asn Gly Gly Thr  
           20                          25                          30  
 Val His Phe Lys Gly Glu Val Val Asn Ala Ala Cys Ala Val Asp Ala  
           35                          40                          45  
 Gly Ser Val Asp Gln Thr Val Gln Leu Gly Gln Val Arg Thr Ala Ser  
   50                          55                          60  
 Leu Ala Gln Glu Gly Ala Thr Ser Ser Ala Val Gly Phe Asn Ile Gln  
   65                          70                          75                          80  
 Leu Asn Asp Cys Asp Thr Asn Val Ala Ser Lys Ala Ala Val Ala Phe  
           85                          90                          95  
 Leu Gly Thr Ala Ile Asp Ala Gly His Thr Asn Val Leu Ala Leu Gln  
           100                          105                          110  
 Ser Ser Ala Ala Gly Ser Ala Thr Asn Val Gly Val Gln Ile Leu Asp  
           115                          120                          125  
 Arg Thr Gly Ala Ala Leu Thr Leu Asp Gly Ala Thr Phe Ser Ser Glu  
   130                          135                          140  
 Thr Thr Leu Asn Asn Gly Thr Asn Thr Ile Pro Phe Gln Ala Arg Tyr  
   145                          150                          155                          160  
 Phe Ala Thr Gly Ala Ala Thr Pro Gly Ala Ala Asn Ala Asp Ala Thr  
           165                          170                          175  
 Phe Lys Val Gln Tyr Gln  
           180

<210> 147  
 <211> 11  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> FLAG peptide

<400> 147  
Cys Gly Gly Asp Tyr Lys Asp Asp Asp Asp Lys  
1 5 10

<210> 148  
<211> 31  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> primer

<400> 148  
ccggaattca tggacattga cccttataaa g 31

<210> 149  
<211> 37  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> primer

<400> 149  
gtgcagtatg gtgaggtgag gaatgctcag gagactc 37

<210> 150  
<211> 37  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> primer

<400> 150  
gsgtctcctg agcattcctc acctcaccat actgcac 37

<210> 151  
<211> 33  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> primer

<400> 151  
cttccaaaag tgagggaaga aatgtgaaac cac 33

<210> 152  
<211> 47  
<212> DNA  
<213> Artificial Sequence

<220>

<223> primer

<400> 152

cgcggtcccaa gcttctaaac aacagtagtc tccggaagcg ttgatag

47

<210> 153

<211> 33

<212> DNA

<213> Artificial Sequence

<220>

<223> primer

<400> 153

gtgggtttcac atttcttccc tcacttttgg aag

33

<210> 154

<211> 281

<212> PRT

<213> *Saccharomyces cerevisiae*

<400> 154

Met Ser Glu Tyr Gln Pro Ser Leu Phe Ala Leu Asn Pro Met Gly Phe  
1 5 10 15

Ser Pro Leu Asp Gly Ser Lys Ser Thr Asn Glu Asn Val Ser Ala Ser  
20 25 30

Thr Ser Thr Ala Lys Pro Met Val Gly Gln Leu Ile Phe Asp Lys Phe  
35 40 45

Ile Lys Thr Glu Glu Asp Pro Ile Ile Lys Gln Asp Thr Pro Ser Asn  
50 55 60

Leu Asp Phe Asp Phe Ala Leu Pro Gln Thr Ala Thr Ala Pro Asp Ala  
65 70 75 80

Lys Thr Val Leu Pro Ile Pro Glu Leu Asp Asp Ala Val Val Glu Ser  
85 90 95

Phe Phe Ser Ser Ser Thr Asp Ser Thr Pro Met Phe Glu Tyr Glu Asn  
100 105 110

Leu Glu Asp Asn Ser Lys Glu Trp Thr Ser Leu Phe Asp Asn Asp Ile  
115 120 125

Pro Val Thr Thr Asp Asp Val Ser Leu Ala Asp Lys Ala Ile Glu Ser  
130 135 140

Thr Glu Glu Val Ser Leu Val Pro Ser Asn Leu Glu Val Ser Thr Thr  
145 150 155 160

Ser Phe Leu Pro Thr Pro Val Leu Glu Asp Ala Lys Leu Thr Gln Thr  
165 170 175

Arg Lys Val Lys Lys Pro Asn Ser Val Val Lys Lys Ser His His Val  
180 185 190

Gly Lys Asp Asp Glu Ser Arg Leu Asp His Leu Gly Val Val Ala Tyr  
195 200 205

Asn Arg Lys Gln Arg Ser Ile Pro Leu Ser Pro Ile Val Pro Glu Ser  
210 215 220

Ser Asp Pro Ala Ala Leu Lys Arg Ala Arg Asn Thr Glu Ala Ala Arg  
225 230 235 240

Arg Ser Arg Ala Arg Lys Leu Gln Arg Met Lys Gln Leu Glu Asp Lys  
245 250 255

Val Glu Glu Leu Leu Ser Lys Asn Tyr His Leu Glu Asn Glu Val Ala  
260 265 270

Arg Leu Lys Lys Leu Val Gly Glu Arg  
275 280

<210> 155

<211> 181

<212> PRT

<213> Escherichia coli

<400> 155

Met Lys Ile Lys Thr Leu Ala Ile Val Val Leu Ser Ala Leu Ser Leu  
1 5 10 15

Ser Ser Thr Ala Ala Leu Ala Ala Ala Thr Thr Val Asn Gly Gly Thr  
20 25 30

Val His Phe Lys Gly Glu Val Val Asn Ala Ala Cys Ala Val Asp Ala  
35 40 45

Gly Ser Val Asp Gln Thr Val Gln Leu Gly Gln Val Arg Thr Ala Ser  
50 55 60

Leu Ala Gln Glu Gly Ala Thr Ser Ser Ala Val Gly Phe Asn Ile Gln  
65 70 75 80

Leu Asn Asp Cys Asp Thr Asn Val Ala Ser Lys Ala Ala Val Ala Phe  
85 90 95

Leu Gly Thr Ala Ile Asp Ala Gly His Thr Asn Val Leu Ala Leu Gln  
100 105 110

Ser Ser Ala Ala Gly Ser Ala Thr Asn Val Gly Val Gln Ile Leu Asp  
115 120 125

Arg Thr Gly Ala Ala Leu Thr Leu Asp Gly Ala Thr Phe Ser Ser Glu  
130 135 140

Thr Thr Leu Asn Asn Gly Thr Asn Thr Ile Pro Phe Gln Ala Arg Tyr  
145 150 155 160

Phe Ala Gly Ala Ala Thr Pro Gly Ala Ala Asn Ala Asp Ala Thr Phe  
165 170 175

Lys Val Gln Tyr Gln  
180

<210> 156  
 <211> 447  
 <212> DNA  
 <213> Hepatitis B

<220>  
 <221> CDS  
 <222> (1)..(447)

<400> 156  
 atg gac att gac cct tat aaa gaa ttt gga gct act gtg gag tta ctc 48  
 Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu  
 1 5 10 15  
 tcg ttt ttg cct tct gac ttc ttt cct tcc gta cga gat ctt cta gat 96  
 Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp  
 20 25 30  
 acc gcc gca gct ctg tat cgg gat gcc tta gag tct cct gag cat tgt 144  
 Thr Ala Ala Ala Leu Tyr Arg Asp Ala Leu Glu Ser Pro Glu His Cys  
 35 40 45  
 tca cct cac cat act gca ctc agg caa gca att ctt tgc tgg gga gac 192  
 Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Asp  
 50 55 60  
 tta atg act cta gct acc tgg gtg ggt act aat tta gaa gat cca gca 240  
 Leu Met Thr Leu Ala Thr Trp Val Gly Thr Asn Leu Glu Asp Pro Ala  
 65 70 75 80  
 tct agg gac cta gta gtc agt tat gtc aac act aat gtg ggc cta aag 288  
 Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn Val Gly Leu Lys  
 85 90 95  
 ttc aga caa tta ttg tgg ttt cac att tct tgt ctc act ttt gga aga 336  
 Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg  
 100 105 110  
 gaa acg gtt cta gag tat ttg gtc tct ttt gga gtg tgg att cgc act 384  
 Glu Thr Val Leu Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr  
 115 120 125  
 cct cca gcc tat aga cca cca aat gcc cct atc cta tca acg ctt ccg 432  
 Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro  
 130 135 140  
 gag act act gtt gtt 447  
 Glu Thr Thr Val Val  
 145

<210> 157  
 <211> 149  
 <212> PRT  
 <213> Hepatitis B

<400> 157  
 Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu  
 1 5 10 15  
 Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp



20 25 30  
Thr Ala Ala Ala Leu Tyr Arg Asp Ala Leu Glu Ser Pro Glu His Cys  
35 40 45  
Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Asp  
50 55 60  
Leu Met Thr Leu Ala Thr Trp Val Gly Thr Asn Leu Glu Asp Pro Ala  
65 70 75 80  
Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn Val Gly Leu Lys  
85 90 95  
Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu Thr Phe Gly Arg  
100 105 110  
Glu Thr Val Leu Glu Tyr Leu Val Ser Phe Gly Val Trp Ile Arg Thr  
115 120 125  
Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser Thr Leu Pro  
130 135 140  
Glu Thr Thr Val Val  
145

<210> 158  
<211> 152  
<212> PRT  
<213> Hepatitis B

<400> 158  
Met Asp Ile Asp Pro Tyr Lys Glu Phe Gly Ala Thr Val Glu Leu Leu  
1 5 10 15  
Ser Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Arg Asp Leu Leu Asp  
20 25 30  
Thr Ala Ala Ala Leu Tyr Arg Asp Ala Leu Glu Ser Pro Glu His Cys  
35 40 45  
Ser Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Asp  
50 55 60  
Leu Met Thr Leu Ala Thr Trp Val Gly Thr Asn Leu Glu Asp Gly Gly  
65 70 75 80  
Lys Gly Gly Ser Arg Asp Leu Val Val Ser Tyr Val Asn Thr Asn Val  
85 90 95  
Gly Leu Lys Phe Arg Gln Leu Leu Trp Phe His Ile Ser Cys Leu Thr  
100 105 110  
Phe Gly Arg Glu Thr Val Leu Glu Tyr Leu Val Ser Phe Gly Val Trp  
115 120 125  
Ile Arg Thr Pro Pro Ala Tyr Arg Pro Pro Asn Ala Pro Ile Leu Ser  
130 135 140

Thr Leu Pro Glu Thr Thr Val Val  
145 150

<210> 159

<211> 132

<212> PRT

<213> Bacteriophage Q Beta

<400> 159

Ala Lys Leu Glu Thr Val Thr Leu Gly Asn Ile Gly Lys Asp Gly Lys  
1 5 10 15

Gln Thr Leu Val Leu Asn Pro Arg Gly Val Asn Pro Thr Asn Gly Val  
20 25 30

Ala Ser Leu Ser Gln Ala Gly Ala Val Pro Ala Leu Glu Lys Arg Val  
35 40 45

Thr Val Ser Val Ser Gln Pro Ser Arg Asn Arg Lys Asn Tyr Lys Val  
50 55 60

Gln Val Lys Ile Gln Asn Pro Thr Ala Cys Thr Ala Asn Gly Ser Cys  
65 70 75 80

Asp Pro Ser Val Thr Arg Gln Ala Tyr Ala Asp Val Thr Phe Ser Phe  
85 90 95

Thr Gln Tyr Ser Thr Asp Glu Glu Arg Ala Phe Val Arg Thr Glu Leu  
100 105 110

Ala Ala Leu Leu Ala Ser Pro Leu Leu Ile Asp Ala Ile Asp Gln Leu  
115 120 125

Asn Pro Ala Tyr  
130

<210> 160

<211> 129

<212> PRT

<213> Bacteriophage R 17

<400> 160

Ala Ser Asn Phe Thr Gln Phe Val Leu Val Asn Asp Gly Gly Thr Gly  
1 5 10 15

Asn Val Thr Val Ala Pro Ser Asn Phe Ala Asn Gly Val Ala Glu Trp  
20 25 30

Ile Ser Ser Asn Ser Arg Ser Gln Ala Tyr Lys Val Thr Cys Ser Val  
35 40 45

Arg Gln Ser Ser Ala Gln Asn Arg Lys Tyr Thr Ile Lys Val Glu Val  
50 55 60

Pro Lys Val Ala Thr Gln Thr Val Gly Gly Val Glu Leu Pro Val Ala  
65 70 75 80

Ala Trp Arg Ser Tyr Leu Asn Met Glu Leu Thr Ile Pro Ile Phe Ala  
85 90 95

Thr Asn Ser Asp Cys Glu Leu Ile Val Lys Ala Met Gln Gly Leu Leu  
100 105 110

Lys Asp Gly Asn Pro Ile Pro Ser Ala Ile Ala Ala Asn Ser Gly Ile  
115 120 125

Tyr

<210> 161  
<211> 130  
<212> PRT  
<213> Bacteriophage fr

<400> 161

Met Ala Ser Asn Phe Glu Glu Phe Val Leu Val Asp Asn Gly Gly Thr  
1 5 10 15

Gly Asp Val Lys Val Ala Pro Ser Asn Phe Ala Asn Gly Val Ala Glu  
20 25 30

Trp Ile Ser Ser Asn Ser Arg Ser Gln Ala Tyr Lys Val Thr Cys Ser  
35 40 45

Val Arg Gln Ser Ser Ala Asn Asn Arg Lys Tyr Thr Val Lys Val Glu  
50 55 60

Val Pro Lys Val Ala Thr Gln Val Gln Gly Gly Val Glu Leu Pro Val  
65 70 75 80

Ala Ala Trp Arg Ser Tyr Met Asn Met Glu Leu Thr Ile Pro Val Phe  
85 90 95

Ala Thr Asn Asp Asp Cys Ala Leu Ile Val Lys Ala Leu Gln Gly Thr  
100 105 110

Phe Lys Thr Gly Asn Pro Ile Ala Thr Ala Ile Ala Ala Asn Ser Gly  
115 120 125

Ile Tyr  
130

<210> 162  
<211> 130  
<212> PRT  
<213> Bacteriophage GA

<400> 162

Met Ala Thr Leu Arg Ser Phe Val Leu Val Asp Asn Gly Gly Thr Gly  
1 5 10 15

Asn Val Thr Val Val Pro Val Ser Asn Ala Asn Gly Val Ala Glu Trp  
20 25 30

Leu Ser Asn Asn Ser Arg Ser Gln Ala Tyr Arg Val Thr Ala Ser Tyr

35	40	45
Arg Ala Ser Gly Ala Asp Lys Arg Lys Tyr Ala Ile Lys Leu Glu Val		
50	55	60
Pro Lys Ile Val Thr Gln Val Val Asn Gly Val Glu Leu Pro Gly Ser		
65	70	75
Ala Trp Lys Ala Tyr Ala Ser Ile Asp Leu Thr Ile Pro Ile Phe Ala		
	85	90
Ala Thr Asp Asp Val Thr Val Ile Ser Lys Ser Leu Ala Gly Leu Phe		
	100	105
Lys Val Gly Asn Pro Ile Ala Glu Ala Ile Ser Ser Gln Ser Gly Phe		
	115	120
Tyr Ala		
130		

<210> 163  
 <211> 132  
 <212> PRT  
 <213> Bacteriophage SP

<400> 163

Met Ala Lys Leu Asn Gln Val Thr Leu Ser Lys Ile Gly Lys Asn Gly		
1	5	10
Asp Gln Thr Leu Thr Leu Thr Pro Arg Gly Val Asn Pro Thr Asn Gly		
	20	25
Val Ala Ser Leu Ser Glu Ala Gly Ala Val Pro Ala Leu Glu Lys Arg		
	35	40
Val Thr Val Ser Val Ala Gln Pro Ser Arg Asn Arg Lys Asn Phe Lys		
	50	55
Val Gln Ile Lys Leu Gln Asn Pro Thr Ala Cys Thr Arg Asp Ala Cys		
65	70	75
Asp Pro Ser Val Thr Arg Ser Ala Phe Ala Asp Val Thr Leu Ser Phe		
	85	90
Thr Ser Tyr Ser Thr Asp Glu Glu Arg Ala Leu Ile Arg Thr Glu Leu		
	100	105
Ala Ala Leu Leu Ala Asp Pro Leu Ile Val Asp Ala Ile Asp Asn Leu		
	115	120
Asn Pro Ala Tyr		
130		

<210> 164  
 <211> 130  
 <212> PRT  
 <213> Bacteriophage MS2

<400> 164

Met Ala Ser Asn Phe Thr Gln Phe Val Leu Val Asp Asn Gly Gly Thr  
1 5 10 15  
Gly Asp Val Thr Val Ala Pro Ser Asn Phe Ala Asn Gly Val Ala Glu  
20 25 30  
Trp Ile Ser Ser Asn Ser Arg Ser Gln Ala Tyr Lys Val Thr Cys Ser  
35 40 45  
Val Arg Gln Ser Ser Ala Gln Asn Arg Lys Tyr Thr Ile Lys Val Glu  
50 55 60  
Val Pro Lys Val Ala Thr Gln Thr Val Gly Gly Val Glu Leu Pro Val  
65 70 75 80  
Ala Ala Trp Arg Ser Tyr Leu Asn Met Glu Leu Thr Ile Pro Ile Phe  
85 90 95  
Ala Thr Asn Ser Asp Cys Glu Leu Ile Val Lys Ala Met Gln Gly Leu  
100 105 110  
Leu Lys Asp Gly Asn Pro Ile Pro Ser Ala Ile Ala Ala Asn Ser Gly  
115 120 125  
Ile Tyr  
130

<210> 165

<211> 133

<212> PRT

<213> Bacteriophage M11

<400> 165

Met Ala Lys Leu Gln Ala Ile Thr Leu Ser Gly Ile Gly Lys Lys Gly  
1 5 10 15  
Asp Val Thr Leu Asp Leu Asn Pro Arg Gly Val Asn Pro Thr Asn Gly  
20 25 30  
Val Ala Ala Leu Ser Glu Ala Gly Ala Val Pro Ala Leu Glu Lys Arg  
35 40 45  
Val Thr Ile Ser Val Ser Gln Pro Ser Arg Asn Arg Lys Asn Tyr Lys  
50 55 60  
Val Gln Val Lys Ile Gln Asn Pro Thr Ser Cys Thr Ala Ser Gly Thr  
65 70 75 80  
Cys Asp Pro Ser Val Thr Arg Ser Ala Tyr Ser Asp Val Thr Phe Ser  
85 90 95  
Phe Thr Gln Tyr Ser Thr Val Glu Glu Arg Ala Leu Val Arg Thr Glu  
100 105 110  
Leu Gln Ala Leu Leu Ala Asp Pro Met Leu Val Asn Ala Ile Asp Asn  
115 120 125

Leu Asn Pro Ala Tyr  
130

<210> 166  
<211> 133  
<212> PRT  
<213> Bacteriophage MX1

<400> 166  
Met Ala Lys Leu Gln Ala Ile Thr Leu Ser Gly Ile Gly Lys Asn Gly  
1 5 10 15  
Asp Val Thr Leu Asn Leu Asn Pro Arg Gly Val Asn Pro Thr Asn Gly  
20 25 30  
Val Ala Ala Leu Ser Glu Ala Gly Ala Val Pro Ala Leu Glu Lys Arg  
35 40 45  
Val Thr Ile Ser Val Ser Gln Pro Ser Arg Asn Arg Lys Asn Tyr Lys  
50 55 60  
Val Gln Val Lys Ile Gln Asn Pro Thr Ser Cys Thr Ala Ser Gly Thr  
65 70 75 80  
Cys Asp Pro Ser Val Thr Arg Ser Ala Tyr Ala Asp Val Thr Phe Ser  
85 90 95  
Phe Thr Gln Tyr Ser Thr Asp Glu Glu Arg Ala Leu Val Arg Thr Glu  
100 105 110  
Leu Lys Ala Leu Leu Ala Asp Pro Met Leu Ile Asp Ala Ile Asp Asn  
115 120 125  
Leu Asn Pro Ala Tyr  
130

<210> 167  
<211> 330  
<212> PRT  
<213> Bacteriophage NL95

<400> 167  
Met Ala Lys Leu Asn Lys Val Thr Leu Thr Gly Ile Gly Lys Ala Gly  
1 5 10 15  
Asn Gln Thr Leu Thr Leu Thr Pro Arg Gly Val Asn Pro Thr Asn Gly  
20 25 30  
Val Ala Ser Leu Ser Glu Ala Gly Ala Val Pro Ala Leu Glu Lys Arg  
35 40 45  
Val Thr Val Ser Val Ala Gln Pro Ser Arg Asn Arg Lys Asn Tyr Lys  
50 55 60  
Val Gln Ile Lys Leu Gln Asn Pro Thr Ala Cys Thr Lys Asp Ala Cys  
65 70 75 80  
Asp Pro Ser Val Thr Arg Ser Gly Ser Arg Asp Val Thr Leu Ser Phe

85					90					95					
Thr	Ser	Tyr	Ser	Thr	Glu	Arg	Glu	Arg	Ala	Leu	Ile	Arg	Thr	Glu	Leu
			100					105					110		
Ala	Ala	Leu	Leu	Lys	Asp	Asp	Leu	Ile	Val	Asp	Ala	Ile	Asp	Asn	Leu
		115					120					125			
Asn	Pro	Ala	Tyr	Trp	Ala	Ala	Leu	Leu	Ala	Ala	Ser	Pro	Gly	Gly	Gly
	130					135					140				
Asn	Asn	Pro	Tyr	Pro	Gly	Val	Pro	Asp	Ser	Pro	Asn	Val	Lys	Pro	Pro
	145					150					155				160
Gly	Gly	Thr	Gly	Thr	Tyr	Arg	Cys	Pro	Phe	Ala	Cys	Tyr	Arg	Arg	Gly
				165					170					175	
Glu	Leu	Ile	Thr	Glu	Ala	Lys	Asp	Gly	Ala	Cys	Ala	Leu	Tyr	Ala	Cys
			180					185					190		
Gly	Ser	Glu	Ala	Leu	Val	Glu	Phe	Glu	Tyr	Ala	Leu	Glu	Asp	Phe	Leu
		195					200					205			
Gly	Asn	Glu	Phe	Trp	Arg	Asn	Trp	Asp	Gly	Arg	Leu	Ser	Lys	Tyr	Asp
	210					215					220				
Ile	Glu	Thr	His	Arg	Arg	Cys	Arg	Gly	Asn	Gly	Tyr	Val	Asp	Leu	Asp
	225					230					235				240
Ala	Ser	Val	Met	Gln	Ser	Asp	Glu	Tyr	Val	Leu	Ser	Gly	Ala	Tyr	Asp
				245					250					255	
Val	Val	Lys	Met	Gln	Pro	Pro	Gly	Thr	Phe	Asp	Ser	Pro	Arg	Tyr	Tyr
			260					265					270		
Leu	His	Leu	Met	Asp	Gly	Ile	Tyr	Val	Asp	Leu	Ala	Glu	Val	Thr	Ala
		275					280					285			
Tyr	Arg	Ser	Tyr	Gly	Met	Val	Ile	Gly	Phe	Trp	Thr	Asp	Ser	Lys	Ser
	290					295					300				
Pro	Gln	Leu	Pro	Thr	Asp	Phe	Thr	Arg	Phe	Asn	Arg	His	Asn	Cys	Pro
	305					310					315				320
Val	Gln	Thr	Val	Ile	Val	Ile	Pro	Ser	Leu						
				325					330						

<210> 168

<211> 134

<212> PRT

<213> Apis mellifera

<400> 168

Ile	Ile	Tyr	Pro	Gly	Thr	Leu	Trp	Cys	Gly	His	Gly	Asn	Lys	Ser	Ser
1				5					10					15	

Gly	Pro	Asn	Glu	Leu	Gly	Arg	Phe	Lys	His	Thr	Asp	Ala	Cys	Cys	Arg
			20					25					30		

Thr His Asp Met Cys Pro Asp Val Met Ser Ala Gly Glu Ser Lys His

35	40	45
Gly Leu Thr Asn Thr Ala Ser His Thr Arg Leu Ser Cys Asp Cys Asp		
50	55	60
Asp Lys Phe Tyr Asp Cys Leu Lys Asn Ser Ala Asp Thr Ile Ser Ser		
65	70	75
Tyr Phe Val Gly Lys Met Tyr Phe Asn Leu Ile Asp Thr Lys Cys Tyr		
	85	90
Lys Leu Glu His Pro Val Thr Gly Cys Gly Glu Arg Thr Glu Gly Arg		
	100	105
Cys Leu His Tyr Thr Val Asp Lys Ser Lys Pro Lys Val Tyr Gln Trp		
	115	120
Phe Asp Leu Arg Lys Tyr		
130		

<210> 169  
 <211> 129  
 <212> PRT  
 <213> Apis mellifera

<400> 169
Ile Ile Tyr Pro Gly Thr Leu Trp Cys Gly His Gly Asn Lys Ser Ser
1 5 10 15
Gly Pro Asn Glu Leu Gly Arg Phe Lys His Thr Asp Ala Cys Cys Arg
20 25 30
Thr His Asp Met Cys Pro Asn Val Met Ser Ala Gly Glu Ser Lys His
35 40 45
Gly Leu Thr Asp Thr Ala Ser Arg Leu Ser Cys Asn Asp Asn Asp Leu
50 55 60
Phe Tyr Lys Asp Ser Ala Asp Thr Ile Ser Ser Tyr Phe Val Gly Lys
65 70 75 80
Met Tyr Phe Asn Leu Ile Asn Thr Lys Cys Tyr Lys Leu Glu His Pro
85 90 95
Val Thr Gly Cys Gly Glu Arg Thr Glu Gly Arg Cys Leu His Tyr Thr
100 105 110
Val Asp Lys Ser Lys Pro Lys Val Tyr Gln Trp Phe Asp Leu Arg Lys
115 120 125
Tyr

<210> 170  
 <211> 134  
 <212> PRT  
 <213> Apis dorsata

<400> 170  
 Ile Ile Tyr Pro Gly Thr Leu Trp Cys Gly His Gly Asn Val Ser Ser



1 5 10 15  
Ser Pro Asp Glu Leu Gly Arg Phe Lys His Thr Asp Ser Cys Cys Arg  
20 25 30  
Ser His Asp Met Cys Pro Asp Val Met Ser Ala Gly Glu Ser Lys His  
35 40 45  
Gly Leu Thr Asn Thr Ala Ser His Thr Arg Leu Ser Cys Asp Cys Asp  
50 55 60  
Asp Lys Phe Tyr Asp Cys Leu Lys Asn Ser Ser Asp Thr Ile Ser Ser  
65 70 75 80  
Tyr Phe Val Gly Glu Met Tyr Phe Asn Ile Leu Asp Thr Lys Cys Tyr  
85 90 95  
Lys Leu Glu His Pro Val Thr Gly Cys Gly Lys Arg Thr Glu Gly Arg  
100 105 110  
Cys Leu Asn Tyr Thr Val Asp Lys Ser Lys Pro Lys Val Tyr Gln Trp  
115 120 125  
Phe Asp Leu Arg Lys Tyr  
130  
  
<210> 171  
<211> 134  
<212> PRT  
<213> Apis cerana  
  
<400> 171  
Ile Ile Tyr Pro Gly Thr Leu Trp Cys Gly His Gly Asn Val Ser Ser  
1 5 10 15  
Gly Pro Asn Glu Leu Gly Arg Phe Lys His Thr Asp Ala Cys Cys Arg  
20 25 30  
Thr His Asp Met Cys Pro Asp Val Met Ser Ala Gly Glu Ser Lys His  
35 40 45  
Gly Leu Thr Asn Thr Ala Ser His Thr Arg Leu Ser Cys Asp Cys Asp  
50 55 60  
Asp Thr Phe Tyr Asp Cys Leu Lys Asn Ser Gly Glu Lys Ile Ser Ser  
65 70 75 80  
Tyr Phe Val Gly Lys Met Tyr Phe Asn Leu Ile Asp Thr Lys Cys Tyr  
85 90 95  
Lys Leu Glu His Pro Val Thr Gly Cys Gly Glu Arg Thr Glu Gly Arg  
100 105 110  
Cys Leu Arg Tyr Thr Val Asp Lys Ser Lys Pro Lys Val Tyr Gln Trp  
115 120 125  
Phe Asp Leu Arg Lys Tyr  
130

<210> 172  
<211> 136  
<212> PRT  
<213> *Bombus pennsylvanicus*

<400> 172  
Ile Ile Tyr Pro Gly Thr Leu Trp Cys Gly Asn Gly Asn Ile Ala Asn  
1 5 10 15  
Gly Thr Asn Glu Leu Gly Leu Trp Lys Glu Thr Asp Ala Cys Cys Arg  
20 25 30  
Thr His Asp Met Cys Pro Asp Ile Ile Glu Ala His Gly Ser Lys His  
35 40 45  
Gly Leu Thr Asn Pro Ala Asp Tyr Thr Arg Leu Asn Cys Glu Cys Asp  
50 55 60  
Glu Glu Phe Arg His Cys Leu His Asn Ser Gly Asp Ala Val Ser Ala  
65 70 75 80  
Ala Phe Val Gly Arg Thr Tyr Phe Thr Ile Leu Gly Thr Gln Cys Phe  
85 90 95  
Arg Leu Asp Tyr Pro Ile Val Lys Cys Lys Val Lys Ser Thr Ile Leu  
100 105 110  
Arg Glu Cys Lys Glu Tyr Glu Phe Asp Thr Asn Ala Pro Gln Lys Tyr  
115 120 125  
Gln Trp Phe Asp Val Leu Ser Tyr  
130 135

<210> 173  
<211> 142  
<212> PRT  
<213> *Heloderma suspectum*

<400> 173  
Gly Ala Phe Ile Met Pro Gly Thr Leu Trp Cys Gly Ala Gly Asn Ala  
1 5 10 15  
Ala Ser Asp Tyr Ser Gln Leu Gly Thr Glu Lys Asp Thr Asp Met Cys  
20 25 30  
Cys Arg Asp His Asp His Cys Ser Asp Thr Met Ala Ala Leu Glu Tyr  
35 40 45  
Lys His Gly Met Arg Asn Tyr Arg Pro His Thr Val Ser His Cys Asp  
50 55 60  
Cys Asp Asn Gln Phe Arg Ser Cys Leu Met Asn Val Lys Asp Arg Thr  
65 70 75 80  
Ala Asp Leu Val Gly Met Thr Tyr Phe Thr Val Leu Lys Ile Ser Cys  
85 90 95  
Phe Glu Leu Glu Glu Gly Glu Gly Cys Val Asp Asn Asn Phe Ser Gln  
100 105 110

Gln Cys Thr Lys Ser Glu Ile Met Pro Val Ala Lys Leu Val Ser Ala  
115 120 125

Ala Pro Tyr Gln Ala Gln Ala Glu Thr Gln Ser Gly Glu Gly  
130 135 140

<210> 174

<211> 143

<212> PRT

<213> Heloderma suspectum

<400> 174

Gly Ala Phe Ile Met Pro Gly Thr Leu Trp Cys Gly Ala Gly Asn Ala  
1 5 10 15

Ala Ser Asp Tyr Ser Gln Leu Gly Thr Glu Lys Asp Thr Asp Met Cys  
20 25 30

Cys Arg Asp His Asp His Cys Glu Asn Trp Ile Ser Ala Leu Glu Tyr  
35 40 45

Lys His Gly Met Arg Asn Tyr Tyr Pro Ser Thr Ile Ser His Cys Asp  
50 55 60

Cys Asp Asn Gln Phe Arg Ser Cys Leu Met Lys Leu Lys Asp Gly Thr  
65 70 75 80

Ala Asp Tyr Val Gly Gln Thr Tyr Phe Asn Val Leu Lys Ile Pro Cys  
85 90 95

Phe Glu Leu Glu Glu Gly Glu Gly Cys Val Asp Trp Asn Phe Trp Leu  
100 105 110

Glu Cys Thr Glu Ser Lys Ile Met Pro Val Ala Lys Leu Val Ser Ala  
115 120 125

Ala Pro Tyr Gln Ala Gln Ala Glu Thr Gln Ser Gly Glu Gly Arg  
130 135 140

<210> 175

<211> 142

<212> PRT

<213> Heloderma suspectum

<400> 175

Gly Ala Phe Ile Met Pro Gly Thr Leu Trp Cys Gly Ala Gly Asn Ala  
1 5 10 15

Ala Ser Asp Tyr Ser Gln Leu Gly Thr Glu Lys Asp Thr Asp Met Cys  
20 25 30

Cys Arg Asp His Asp His Cys Glu Asn Trp Ile Ser Ala Leu Glu Tyr  
35 40 45

Lys His Gly Met Arg Asn Tyr Tyr Pro Ser Thr Ile Ser His Cys Asp  
50 55 60

Cys Asp Asn Gln Phe Arg Ser Cys Leu Met Lys Leu Lys Asp Gly Thr

65		70		75		80									
Ala	Asp	Tyr	Val	Gly	Gln	Thr	Tyr	Phe	Asn	Val	Leu	Lys	Ile	Pro	Cys
				85					90					95	
Phe	Glu	Leu	Glu	Glu	Gly	Glu	Gly	Cys	Val	Asp	Trp	Asn	Phe	Trp	Leu
			100					105					110		
Glu	Cys	Thr	Glu	Ser	Lys	Ile	Met	Pro	Val	Ala	Lys	Leu	Val	Ser	Ala
		115					120					125			

Ala	Pro	Tyr	Gln	Ala	Gln	Ala	Glu	Thr	Gln	Ser	Gly	Glu	Gly
	130					135					140		

<210> 176  
 <211> 574  
 <212> PRT  
 <213> IgE heavy chain

<400> 176

Met	Asp	Trp	Thr	Trp	Ile	Leu	Phe	Leu	Val	Ala	Ala	Ala	Thr	Arg	Val
1				5					10					15	
His	Ser	Gln	Thr	Gln	Leu	Val	Gln	Ser	Gly	Ala	Glu	Val	Arg	Lys	Pro
			20					25					30		
Gly	Ala	Ser	Val	Arg	Val	Ser	Cys	Lys	Ala	Ser	Gly	Tyr	Thr	Phe	Ile
			35				40					45			
Asp	Ser	Tyr	Ile	His	Trp	Ile	Arg	Gln	Ala	Pro	Gly	His	Gly	Leu	Glu
		50				55					60				
Trp	Val	Gly	Trp	Ile	Asn	Pro	Asn	Ser	Gly	Gly	Thr	Asn	Tyr	Ala	Pro
65					70					75					80
Arg	Phe	Gln	Gly	Arg	Val	Thr	Met	Thr	Arg	Asp	Ala	Ser	Phe	Ser	Thr
				85					90					95	
Ala	Tyr	Met	Asp	Leu	Arg	Ser	Leu	Arg	Ser	Asp	Asp	Ser	Ala	Val	Phe
			100					105					110		
Tyr	Cys	Ala	Lys	Ser	Asp	Pro	Phe	Trp	Ser	Asp	Tyr	Tyr	Asn	Phe	Asp
		115					120					125			
Tyr	Ser	Tyr	Thr	Leu	Asp	Val	Trp	Gly	Gln	Gly	Thr	Thr	Val	Thr	Val
		130				135					140				
Ser	Ser	Ala	Ser	Thr	Gln	Ser	Pro	Ser	Val	Phe	Pro	Leu	Thr	Arg	Cys
					150					155					160
Cys	Lys	Asn	Ile	Pro	Ser	Asn	Ala	Thr	Ser	Val	Thr	Leu	Gly	Cys	Leu
				165					170					175	
Ala	Thr	Gly	Tyr	Phe	Pro	Glu	Pro	Val	Met	Val	Thr	Trp	Asp	Thr	Gly
			180					185					190		

Ser Leu Asn Gly Thr Thr Met Thr Leu Pro Ala Thr Thr Leu Thr Leu  
195 200 205

Ser Gly His Tyr Ala Thr Ile Ser Leu Leu Thr Val Ser Gly Ala Trp  
210 215 220

Ala Lys Gln Met Phe Thr Cys Arg Val Ala His Thr Pro Ser Ser Thr  
225 230 235 240

Asp Trp Val Asp Asn Lys Thr Phe Ser Val Cys Ser Arg Asp Phe Thr  
245 250 255

Pro Pro Thr Val Lys Ile Leu Gln Ser Ser Cys Asp Gly Gly Gly His  
260 265 270

Phe Pro Pro Thr Ile Gln Leu Leu Cys Leu Val Ser Gly Tyr Thr Pro  
275 280 285

Gly Thr Ile Asn Ile Thr Trp Leu Glu Asp Gly Gln Val Met Asp Val  
290 295 300

Asp Leu Ser Thr Ala Ser Thr Thr Gln Glu Gly Glu Leu Ala Ser Thr  
305 310 315 320

Gln Ser Glu Leu Thr Leu Ser Gln Lys His Trp Leu Ser Asp Arg Thr  
325 330 335

Tyr Thr Cys Gln Val Thr Tyr Gln Gly His Thr Phe Glu Asp Ser Thr  
340 345 350

Lys Lys Cys Ala Asp Ser Asn Pro Arg Gly Val Ser Ala Tyr Leu Ser  
355 360 365

Arg Pro Ser Pro Phe Asp Leu Phe Ile Arg Lys Ser Pro Thr Ile Thr  
370 375 380

Cys Leu Val Val Asp Leu Ala Pro Ser Lys Gly Thr Val Asn Leu Thr  
385 390 395 400

Trp Ser Arg Ala Ser Gly Lys Pro Val Asn His Ser Thr Arg Lys Glu  
405 410 415

Glu Lys Gln Arg Asn Gly Thr Leu Thr Val Thr Ser Thr Leu Pro Val  
420 425 430

Gly Thr Arg Asp Trp Ile Glu Gly Glu Thr Tyr Gln Cys Arg Val Thr  
435 440 445

His Pro His Leu Pro Arg Ala Leu Met Arg Ser Thr Thr Lys Thr Ser  
450 455 460

Gly Pro Arg Ala Ala Pro Glu Val Tyr Ala Phe Ala Thr Pro Glu Trp  
465 470 475 480

Pro Gly Ser Arg Asp Lys Arg Thr Leu Ala Cys Leu Ile Gln Asn Phe  
485 490 495

Met Pro Glu Asp Ile Ser Val Gln Trp Leu His Asn Glu Val Gln Leu  
500 505 510

Pro Asp Ala Arg His Ser Thr Thr Gln Pro Arg Lys Thr Lys Gly Ser  
515 520 525

Gly Phe Phe Val Phe Ser Arg Leu Glu Val Thr Arg Ala Glu Trp Glu  
530 535 540

Gln Lys Asp Glu Phe Ile Cys Arg Ala Val His Glu Ala Ala Ser Pro  
545 550 555 560

Ser Gln Thr Val Gln Arg Ala Val Ser Val Asn Pro Gly Lys  
565 570

<210> 177

<400> 177  
000

<210> 178  
<211> 13  
<212> PRT  
<213> IgE Peptides

<400> 178  
Cys Gly Gly Val Asn Leu Thr Trp Ser Arg Ala Ser Gly  
1 5 10

<210> 179  
<211> 8  
<212> PRT  
<213> IgE Mimotype

<400> 179  
Ile Asn His Arg Gly Tyr Trp Val  
1 5

<210> 180  
<211> 8  
<212> PRT  
<213> IgE Mimotype

<400> 180  
Arg Asn His Arg Gly Tyr Trp Val  
1 5

<210> 181  
<211> 10  
<212> PRT  
<213> IgE Mimotype

<400> 181  
Arg Ser Arg Ser Gly Gly Tyr Trp Leu Trp  
1 5 10

<210> 182  
<211> 10  
<212> PRT  
<213> IgE Mimotype

<400> 182  
Val Asn Leu Thr Trp Ser Arg Ala Ser Gly  
1 5 10

<210> 183  
<211> 10  
<212> PRT  
<213> IgE Mimotype

<400> 183  
Val Asn Leu Pro Trp Ser Arg Ala Ser Gly  
1 5 10

<210> 184  
<211> 10  
<212> PRT  
<213> IgE Mimotype

<400> 184  
Val Asn Leu Thr Trp Ser Phe Gly Leu Glu  
1 5 10

<210> 185  
<211> 10  
<212> PRT  
<213> IgE Mimotype

<400> 185  
Val Asn Leu Pro Trp Ser Phe Gly Leu Glu  
1 5 10

<210> 186  
<211> 10  
<212> PRT  
<213> IgE Mimotype

<400> 186  
Val Asn Arg Pro Trp Ser Phe Gly Leu Glu  
1 5 10

<210> 187  
<211> 10  
<212> PRT  
<213> IgE Mimotype

<400> 187  
Val Lys Leu Pro Trp Arg Phe Tyr Gln Val  
1 5 10

<210> 188  
<211> 10  
<212> PRT  
<213> IgE Mimotype

<400> 188

Val Trp Thr Ala Cys Gly Tyr Gly Arg Met  
1 5 10

<210> 189  
<211> 7  
<212> PRT  
<213> IgE Mimotype

<400> 189  
Gly Thr Val Ser Thr Leu Ser  
1 5

<210> 190  
<211> 7  
<212> PRT  
<213> IgE Mimotype

<400> 190  
Leu Leu Asp Ser Arg Tyr Trp  
1 5

<210> 191  
<211> 7  
<212> PRT  
<213> IgE Mimotype

<400> 191  
Gln Pro Ala His Ser Leu Gly  
1 5

<210> 192  
<211> 7  
<212> PRT  
<213> IgE Mimotype

<400> 192  
Leu Trp Gly Met Gln Gly Arg  
1 5

<210> 193  
<211> 15  
<212> PRT  
<213> IgE Mimotype

<400> 193  
Leu Thr Leu Ser His Pro His Trp Val Leu Asn His Phe Val Ser  
1 5 10 15



<210> 194  
<211> 9  
<212> PRT  
<213> IgE Mimotype

<400> 194  
Ser Met Gly Pro Asp Gln Thr Leu Arg  
1 5

<210> 195  
<211> 6  
<212> PRT  
<213> IgE Mimotype

<400> 195  
Val Asn Leu Thr Trp Ser  
1 5

<210> 196  
<211> 56  
<212> DNA  
<213> Oligonucleotide Primer

<400> 196  
tagatgatta cgccaagctt ataatagaaa tagttttttg aaaggaaagc agcatg 56

<210> 197  
<211> 45  
<212> DNA  
<213> Oligonucleotide Primer

<400> 197  
gtcaaaggcc ttgtcgacgt tattccatta cgcccgtcac tttgg 45

<210> 198  
<211> 4623  
<212> DNA  
<213> pFIMAIC

<400> 198  
agacgaaagg gcctcgtgat acgcctatatt ttataggta atgtcatgat aataatgggt 60  
tcttagacgt caggtggcac ttttcgggga aatgtgcgcg gaacccttat ttgtttatatt 120  
ttctaaatac attcaaatat gtatccgctc atgagacaat aaccctgata aatgcttcaa 180  
taatattgaa aaaggaagag tatgagtatt caacatttcc gtgtcgccct tattcccttt 240  
tttgcgggcat tttgccttcc tgtttttgct caccagaaa cgctgggtgaa agtaaaagat 300  
gctgaagatc agttgggtgc acgagtgggt tacatcgaac tggatctcaa cagcggtaag 360  
atccttgaga gttttcgccc cgaagaacgt tttccaatga tgagcacttt taaagttctg 420  
ctatgtggcg cggtattatc ccgtattgac gccgggcaag agcaactcgg tcgccgcata 480  
cactattctc agaatgactt ggttgagtac tcaccagtca cagaaaagca tcttacggat 540

ggcatgacag taagagaatt atgcagtgct gccataacca tgagtgataa cactgcgggc	600
aacttacttc tgacaacgat cggaggaccg aaggagctaa ccgctttttt gcacaacatg	660
ggggatcatg taactcgctt tgatcggttg gaaccggagc tgaatgaagc cataccaaac	720
gacgagcgtg acaccacgat gcctgtagca atggcaacaa cgttgcgcaa actattaact	780
ggcgaactac ttactctagc ttcccggcaa caattaatag actggatgga ggcggataaa	840
gttgcaggac cacttctgct ctcggccctt ccggctggct ggtttattgc tgataaatct	900
ggagccggtg agcgtgggtc tcgcggtatc attgcagcac tggggccaga tggtaagccc	960
tcccgatcgt tagttatcta cagcagggg agtcaggcaa ctatggatga acgaaataga	1020
cagatcgctg agataggtgc ctactgatt aagcattggt aactgtcaga ccaagtttac	1080
tcatatatac tttagattga tttaaaactt cttttttaat ttaaaaggat ctaggtgaag	1140
atcctttttg ataatotcat gaccaaatac ccttaacgtg agttttcgtt ccactgagcg	1200
tcagaccccg tagaaaagat caaaggatct tcttgagatc ctttttttct gcgcgtaatc	1260
tgctgcttgc aaacaaaaaa accaccgcta ccagcggtgg tttgtttgcc ggatcaagag	1320
ctaccaactc tttttccgaa ggtaactggc ttcagcagag cgcagatacc aaatactgtc	1380
cttctagtgt agccgtagtt aggccaccac ttcaagaact ctgtagcacc gcctacatac	1440
ctcgtctctg taatcctgtt accagtggct gctgccagtg gcgataagtc gtgtcttacc	1500
gggttggaact caagacgata gttaccggat aaggcgcagc ggtcgggctg aacggggggt	1560
tcgtgcacac agcccagctt ggagcgaacg acctacaccg aactgagata cctacagcgt	1620
gagctatgag aaagcgccac gcttcccgaa gggagaaagg cggacaggta tccggtaagc	1680
ggcagggctg gaacaggaga gcgcacgagg gagcttccag ggggaaacgc ctggtatctt	1740
tatagtcttg tcgggtttcg ccacctctga cttgagcgtc gattttttgtg atgctcgtca	1800
ggggggcgga gcctatggaa aaacgccagc aacgcggcct ttttacggtt cctggccttt	1860
tgctggcctt ttgctcacat gttctttcct gcgttatccc ctgattctgt ggataaccgt	1920
attaccgcct ttgagtgagc tgataccgct cgccgcagcc gaacgaccga gcgcagcgag	1980
tcagtgagcg aggaagcgga agagcgccca atacgcaaac cgctctccc cgcgcggttg	2040
ccgattcatt aatgcagctg gcacgacagg tttcccgact ggaaagcggg cagtgagcgc	2100
aacgcaatta atgtgagtta gctcactcat taggcacccc aggctttaca ctttatgctt	2160
ccggctcgta tgttgtgtgg aattgtgagc ggataacaat ttcacacagg aaacagctat	2220
gaccatgatt acgccaagct tataatagaa atagtttttt gaaaggaaa cagcatgaaa	2280
attaaaactc tggcaatcgt tgttctgtcg gctctgtccc tcagttctac agcggctctg	2340

gccgctgcca cgacgggttaa tggtagggacc gttcacttta aaggggaagt tgttaacgcc	2400
gcttgcgag ttgatgcagg ctctgttgat caaacggttc agttaggaca ggttcgtacc	2460
gcatcgctgg cacaggaagg agcaaccagt tctgctgtcg gttttaacat tcagctgaat	2520
gattgcgata ccaatgttgc atctaaagcc gctgttgcc ttttaggtac ggcgattgat	2580
gcgggtcata ccaacgttct ggctctgcag agttcagctg cgggtagcgc aacaaacgtt	2640
ggtgtgcaga tcctggacag aacgggtgct gcgctgacgc tggatggtgc gacatttagt	2700
tcagaaacaa ccctgaataa cggaaccaat accattccgt tccaggcgcg ttattttgca	2760
accggggccg caaccccggtg tgcgtgcta gggatgcga ccttcaaggt tcagtatcaa	2820
taacctacc aggttcagg acgtcattac gggcagggat gccaccctt gtgcgataaa	2880
aataacgatg aaaaggaaga gattatttct attagcgtcg ttgctgcaa tgtttgctct	2940
ggccggaaat aaatggaata ccacgttgcc cggcggaaat atgcaatttc agggcgctcat	3000
tattgcggaa acttgccgga ttgaagccgg tgataaacia atgacggtca atatggggca	3060
aatcagcagt aaccggtttc atgcggttg ggaagatagc gcaccggtgc cttttgttat	3120
tcatttacgg gaatgtagca cggtagtgag tgaacgtgta ggtgtggcgt ttcacggtgt	3180
cgcggtggt aaaaatccgg atgtgctttc cgtgggagag gggccaggga tagccaccaa	3240
tattggcgta gcgttgtttg atgatgaagg aaacctcgta ccgattaatc gtcctccagc	3300
aaactggaaa cggctttatt caggctctac ttcgctacat ttcacgcca aatatcgtc	3360
taccgggcgt cgggttactg gcggcatcgc caatgccag gcctgggttct ctttaaccta	3420
tcagtaattg ttcagcagat aatgtgataa caggaaacagg acagtgagta ataaaaacgt	3480
caatgtaagg aaatcgcagg aaataacatt ctgcttgctg gcaggatatc tgatgttcat	3540
ggcaatgatg gttgccggac gcgctgaagc gggagtggcc ttaggtgcga ctgcgtaat	3600
ttatccggca gggcaaaaac aagagcaact tgccgtgaca aataatgatg aaaatagtag	3660
ctatttaatt caatcatggg tggaaaatgc cgatggtgta aaggatggtc gttttatcgt	3720
gacgcctcct ctgtttgcga tgaagggaia aaaagagaat accttacgta ttcttgatgc	3780
aacaaataac caattgccac aggaccggga aagtttattc tggatgaacg ttaaagcgat	3840
tccgtcaatg gataaatcaa aattgactga gaatacgcta cagctcgcaa ttatcagccg	3900
cattaaaactg tactatcgcc cggctaaatt agcgttgcca cccgatcagg ccgcagaaaa	3960
attaagattt cgtcgtagcg cgaattctct gacgctgatt aaccgcacac cctattacct	4020
gacggtaca gagttgaatg ccggaacccg ggttcttgaa aatgcattgg tgctccaat	4080
gggcgaaagc acggttaaat tgccttctga tgcaggaagc aatattactt accgaacaat	4140
aaatgattat ggcgactta ccccaaaaat gacgggcgta atggaataac gtcgactcta	4200

gaggatcccc gggtagcgag ctggaattca ctggccgctg ttttacaacg tcgtgactgg 4260  
gaaaaccctg gcgttaccca acttaatcgc cttgcagcac atcccccttt cgccagctgg 4320  
cgtaatagcg aagaggcccc caccgatcgc ccttcccaac agttgcgcag cctgaatggc 4380  
gaatggcgcc tgatgcggta ttttctcctt acgcatctgt gcggtatttc acaccgcata 4440  
tgggtgcactc tcagtacaat ctgctctgat gccgcatagt taagccagcc ccgacacccg 4500  
ccaacacccg ctgacgcgcc ctgacgggct tgtctgctcc cggcatccgc ttacagacaa 4560  
gctgtgaccg tctccgggag ctgcatgtgt cagagggtttt caccgtcatc accgaaacgc 4620  
gcg 4623

<210> 199  
<211> 42  
<212> DNA  
<213> Oligonucleotide Primer

<400> 199 42  
aagatcttaa gctaagcttg aattctctga cgctgattaa cc

<210> 200  
<211> 41  
<212> DNA  
<213> Oligonucleotide Primer

<400> 200 41  
acgtaaagca tttctagacc gcggatagta atcgtgctat c

<210> 201  
<211> 5681  
<212> DNA  
<213> pFIMD

<400> 201 60  
tcaccgtcat caccgaaacg cgcgagacga aagggcctcg tgatacgcct atttttatag  
gttaatgtca tgataataat ggtttcttag acgtcagggtg gcacttttcg gggaaatgtg 120  
cgcggaaccc ctatttgttt atttttctaa atacattcaa atatgtatcc gctcatgaga 180  
caataaccct gataaatgct tcaataatat tgaaaaagga agagtatgag tattcaacat 240  
ttccgtgtcg cccttattcc cttttttgcg gcattttgccc ttctgtttt tgctcaccca 300  
gaaacgctgg tgaaagtaaa agatgctgaa gatcagttgg gtgcacgagt gggttacatc 360  
gaactggatc tcaacagcgg taagatcctt gagagttttc gccccgaaga acgttttcca 420  
atgatgagca cttttaaaagt tctgctatgt ggcgcgggtat tatcccgat tgacgccggg 480  
caagagcaac tcggtcgccg catacactat tctcagaatg acttggttga gtactcacca 540  
gtcacagaaa agcatcttac ggatggcatg acagtaagag aattatgcag tgctgccata 600

accatgagtg ataactgc ggccaactta cttctgacaa cgatcggagg accgaaggag 660  
ctaaccgctt ttttgcacaa catgggggat catgtaactc gccttgatcg ttgggaaccg 720  
gagctgaatg aagccatacc aaacgacgag cgtgacacca cgatgcctgt agcaatggca 780  
acaacgttgc gcaaactatt aactggcgaa ctacttactc tagcttcccg gcaacaatta 840  
atagactgga tggaggcgga taaagttgca ggaccacttc tgcgctcggc ccttcgggt 900  
ggctggttta ttgctgataa atctggagcc ggtgagcgtg ggtctcgcg tatcattgca 960  
gcactggggc cagatggtaa gccctcccg atcgtagtta tctacacgac ggggagtcag 1020  
gcaactatgg atgaacgaaa tagacagatc gctgagatag gtgcctcact gattaagcat 1080  
tggttaactgt cagaccaagt ttactcatat atactttaga ttgatttaaa acttcatttt 1140  
taattttaaaa ggatctaggt gaagatcctt ttgataatc tcatgaccaa aatcccttaa 1200  
cgtgagtttt cgttccactg agcgtcagac cccgtagaaa agatcaaagg atcttcttga 1260  
gatccttttt ttctgcgcgt aatctgctgc ttgcaaacaa aaaaaccacc gctaccagcg 1320  
gtggtttggt tgcgggatca agagctacca actctttttc cgaaggtaac tggcttcagc 1380  
agagcgcaga taccaaatac tgtccttcta gtgtagccgt agttaggcca ccacttcaag 1440  
aactctgtag caccgcctac atacctcgt ctgctaacc tgttaccagt ggctgctgcc 1500  
agtggcgata agtcgtgtct taccgggttg gactcaagac gatagttacc ggataaggcg 1560  
cagcggtcgg gctgaacggg gggttcgtgc acacagccca gcttggagcg aacgacctac 1620  
accgaactga gatactaca gcgtgagcta tgagaaagcg ccacgcttcc cgaagggaga 1680  
aaggcggaca ggtatccggt aagcggcagg gtcggaacag gagagcgcac gagggagctt 1740  
ccagggggaa acgcctggta tctttatagt cctgtcgggt ttcgccacct ctgacttgag 1800  
cgtcgatttt tgtgatgctc gtcagggggg cggagcctat ggaaaaacgc cagcaacgcg 1860  
gcctttttac ggttcctggc cttttgctgg cttttgctc acatgttctt tcctgcgtta 1920  
tcccttgatt ctgtggataa ccgtattacc gcctttgagt gagctgatac cgctcgccgc 1980  
agccgaacga ccgagcgcag cgagtcagtg agcgaggaag cggaagagcg cccaatacgc 2040  
aaaccgcctc tccccgcgcg ttggccgatt cattaatgca gctggcacga caggtttccc 2100  
gactggaaag cgggcagtga gcgcaacgca attaatgtga gttagctcac tcattaggca 2160  
ccccaggctt tacactttat gcttcgggt cgtatgttgt gtggaattgt gagcggataa 2220  
caatttcaca caggaaacag ctatgaccat gattacgcca agcttgaatt ctctgacgct 2280  
gattaacccg acaccctatt acctgacggt aacagagttg aatgccggaa cccgggttct 2340  
tgaaaatgca ttggtgcctc caatgggcga aagcacggtt aaattgcctt ctgatgcagg 2400

aagcaatatt acttaccgaa caataaatga ttatggcgca cttaccccca aaatgacggg 2460  
cgtaatggaa taacgcaggg ggaatttttc gcctgaataa aaagaattga ctgccgggggt 2520  
gattttaagc cggaggaata atgtcatatc tgaatttaag actttaccag cgaaacacac 2580  
aatgcttgca tattcgtaag catcgtttgg ctggtttttt tgtcgcactc gttgtgcct 2640  
gtgcttttgc cgcacaggca cttttgtcat ctgccgacct ctattttaat ccgcgctttt 2700  
tagcggatga tccccaggct gtggccgatt tatcgcgttt tgaaaatggg caagaattac 2760  
cgccagggac gtatcgctc gatatctatt tgaataatgg ttatatggca acgcgtgatg 2820  
tcacatttaa tacgggcgac agtgaacaag ggattgttcc ctgcctgaca cgcgcgcaac 2880  
tcgccagtat ggggctgaat acggcttctg tcgccggtat gaatctgctg gcggatgatg 2940  
cctgtgtgcc attaacaca atgggtccagg acgctactgc gcactctggat gttggtcagc 3000  
agcgactgaa cctgacgac cctcaggcat ttatgagtaa tcgcgcgcgt ggttatattc 3060  
ctcctgagtt atgggatccc ggtattaatg ccggattgct caattataat ttcagcggaa 3120  
atagtgtaca gaatcggatt gggggtaaca gccattatgc atatttaaac ctacagagtg 3180  
ggttaaatat tgggtgcgtg cgtttacgcg acaataccac ctggagttat aacagtagcg 3240  
acagatcatic aggtagcaaa aataaatggc agcatatcaa tacctggctt gagcgagaca 3300  
taataccggt acgttccccg ctgacgctgg gtgatggta tactcagggc gatattttcg 3360  
atggtattaa ctttcgcggc gcacaattgg cctcagatga caatatgtta cccgatagtc 3420  
aaagaggatt tgccccggtg atccacggta ttgctcgtgg tactgcacag gtcactatta 3480  
aacaaaatgg gtatgacatt tataatagta cgggtgccacc ggggcctttt accatcaacg 3540  
atatctatgc cgcaggtaat agtggtgact tgcaggtaac gatcaaagag gctgacggca 3600  
gcacgcagat ttttacgta cctattcgt cagtcccgt tttgcaacgt gaagggcata 3660  
ctcgttattc cattacggca ggagaatacc gtagtggaaa tgcgcagcag gaaaaaaccc 3720  
gotttttcca gagtacatta ctccacggcc ttccggctgg ctggacaata tatggtggaa 3780  
cgcaactggc ggatcgttat cgtgctttta atttcggtat cgggaaaaac atgggggcac 3840  
tgggcgctct gtctgtggat atgacgcagg ctaattccac acttcccgat gacagtcagc 3900  
atgacggaca atcgggtcgt tttctctata acaaatcgt caatgaatca ggcacgaata 3960  
ttcagttagt gggttaccgt tattcgacca gcggatattt taatttcgct gataacaat 4020  
acagtcgaat gaatggctac aacattgaaa cacaggacgg agttattcag gttaagccga 4080  
aattcaccca ctattacaac ctgccttata acaaacgcgg gaaattacaa ctacacgtta 4140  
ctcagcaact cgggcgcaca tcaacactgt atttgagtgg tagccatcaa acttattggg 4200  
gaacgagtaa tgcgatgag caattccagg ctggattaaa tactgcgttc gaagatatca 4260

```

actggacgct cagctatagc ctgacgaaaa acgcctggca aaaaggacgg gatcagatgt 4320
tagcgcttaa cgtcaatatt cctttcagcc actggctgcg ttctgacagt aaatctcagt 4380
ggcgacatgc cagtgccagc tacagcatgt cacacgatct caacggtcgg atgaccaatc 4440
tggctggtgt atacggtacg ttgctggaag acaacaacct cagctatagc gtgcaaaccg 4500
gctatgccgg gggaggcgat ggaaatagcg gaagtacagg ctacgccacg ctgaattatc 4560
gcggtgggta cggcaatgcc aatatcggtt acagccatag cgatgatatt aagcagctct 4620
attacggagt cagcgggtgg gtactggctc atgccaatgg cgtaacgctg gggcagccgt 4680
taaacgatac ggtggtgctt gttaaagcgc ctggcgcaaa agatgcaaaa gtcgaaaacc 4740
agacgggggt gcgtaccgac tggcgtggtt atgccgtgct gccttatgcc actgaatatc 4800
gggaaaatag agtggcgctg gataccaata ccctggctga taacgtcgat ttagataacg 4860
cggttgctaa cgttggtccc actcgtgggg cgatcgtgcg agcagagttt aaagcgcgcg 4920
ttgggataaa actgctcatg acgctgaccc acaataataa gccgctgccg tttggggcga 4980
tggtgacatc agagagtagc cagagtagcg gcattgttgc ggataatggt cagggttacc 5040
tcagcggaat gccttttagc ggaaaagttc aggtgaaatg gggagaagag gaaaatgctc 5100
actgtgtcgc caattatcaa ctgccaccag agagtcagca gcagttatta acccagctat 5160
cagctgaatg tcgttaaggg ggcgtgatga gaaacaaacc tttttatctt ctgtgcgctt 5220
ttttgtggct ggcggtgagt cacgctttgg ctgcggatag cacgattact atccgcggtc 5280
tagaggatcc ccgggtaccg agctcgaatt cactggccgt cgttttacaa cgtcgtgact 5340
gggaaaaccc tggcgttacc caacttaatc gccttgacgc acatccccct ttccgcagct 5400
ggcgtaatag cgaagaggcc cgcaccgatc gcccttccca acagttgcgc agcctgaatg 5460
gcgaatggcg cctgatgcgg tattttctcc ttacgcatct gtgcggtatt tcacaccgca 5520
tatggtgcac tctcagtaca atctgctctg atgccgcata gttaagccag ccccgacacc 5580
cgccaacacc cgctgacgcg ccctgacggg cttgtctgct cccggcatcc gcttacagac 5640
aagctgtgac cgtctccggg agctgcatgt gtcagagggt t , 5681

```

```

<210> 202
<211> 40
<212> DNA
<213> Oligonucleotide Primer

```

```

<400> 202
aattacgtga gcaagcttat gagaaacaaa cctttttatc 40

```

```

<210> 203
<211> 41

```

<212> DNA  
<213> Oligonucleotide Primer

<400> 203  
gactaaggcc tttctagatt attgataaac aaaagtcacg c 41

<210> 204  
<211> 4637  
<212> DNA  
<213> pFIMFGH

<400> 204  
aaagggcctc gtgatacgcc tattttttata ggttaatgtc atgataataa tgggtttctta 60  
gacgtcaggt ggcacttttc ggggaaatgt gcgcggaacc cctatttggtt tattttttcta 120  
aatacattca aatatgtatc cgctcatgag acaataaccc tgataaatgc ttcaataata 180  
ttgaaaaagg aagagtatga gtattcaaca tttccgtgtc gcccttattc ctttttttgc 240  
ggcatttttg cttcctgttt ttgctcacc agaaacgctg gtgaaagtaa aagatgctga 300  
agatcagttg ggtgcacgag tgggttacat cgaactggat ctcaacagcg gtaagatcct 360  
tgagagtttt cgccccgaag aacgttttcc aatgatgagc actttttaag ttctgctatg 420  
tggcgcggtta ttatcccgta ttgacgccgg gcaagagcaa ctcggtcgcc gcatacacta 480  
ttctcagaat gacttggttg agtactcacc agtcacagaa aagcatctta cggatggcat 540  
gacagtaaga gaattatgca gtgctgccat aaccatgagt gataacactg cggccaactt 600  
acttctgaca acgatcggag gaccgaagga gctaaccgct tttttgcaca acatggggga 660  
tcatgtaact cgcttgatc gttgggaacc ggagctgaat gaagccatac caaacgacga 720  
gcgtgacacc acgatgcctg tagcaatggc aacaacgttg cgcaaactat taactggcga 780  
actacttact ctagcttccc ggcaacaatt aatagactgg atggaggcgg ataaagttgc 840  
aggaccactt ctgcgctcgg cccttcggc tggctggttt attgctgata aatctggagc 900  
cggtgagcgt ggggtctcgg gtatcattgc agcactgggg ccagatggta agccctcccg 960  
tatcgtagtt atctacacga cggggagtca ggcaactatg gatgaacgaa atagacagat 1020  
cgctgagata ggtgcctcac tgattaagca ttggtaactg tcagaccaag ttactcata 1080  
tatactttag attgatttaa aacttcattt ttaatttaaa aggatctagg tgaagatcct 1140  
ttttgataat ctcatgacca aaatccctta acgtgagttt tcgttccact gagcgtcaga 1200  
ccccgtagaa aagatcaaag gatcttcttg agatcctttt tttctgcgcg taatctgctg 1260  
cttgcaaaca aaaaaaccac cgctaccagc ggtgggttgg ttgccggatc aagagctacc 1320  
aactcttttt ccgaaggtaa ctggcttcag cagagcgcag ataccaaata ctgtccttct 1380  
agtgtagccg tagttaggcc accacttcaa gaactctgta gcaccgcta catacctcgc 1440



tctgctaadc ctgttaccag tggctgctgc cagtggcgat aagtcgtgtc ttaccggggt	1500
ggactcaaga cgatagttac cggataaggc gcagcggctg ggctgaacgg ggggttcgtg	1560
cacacagccc agcttgagc gaacgaccta caccgaactg agatacctac agcgtgagct	1620
atgagaaagc gccacgcttc ccgaaggag aaaggcggac aggtatccgg taagcggcag	1680
ggtcggaaca ggagagcgca cgaggagct tccaggggga aacgcctgg atctttatag	1740
tcctgtcggg ttctgccacc tctgacttga gcgtcgattt ttgtgatgct cgtcagggg	1800
gcggagccta tggaaaaacg ccagcaacgc ggccttttta cggttcctgg ccttttctg	1860
gccttttctg cacatgttct ttctgcgtt atccctgat tctgtggata accgtattac	1920
cgcctttgag tgagctgata ccgctcgccg cagccgaacg accgagcgca gcgagtcagt	1980
gagcgaggaa gcggaagagc gcccaatacg caaacgcct ctccccgcgc gttggccgat	2040
tcattaatgc agctggcacg acaggtttcc cgactggaaa gcgggcagtg agcgcaacgc	2100
aattaatgtg agttagctca ctcataggg accccaggct ttacacttta tgcttcggc	2160
tcgtatgttg tgtggaattg tgagcggata acaatttcac acaggaaaca gctatgacca	2220
tgattacgcc aagcttatga gaaacaaacc tttttatctt ctgtgcgctt ttttgtggct	2280
ggcggtgagt cacgctttgg ctgcggatag cacgattact atccgcggct atgtcaggg	2340
taacggctgt agtggtggcg ctgaatcaac caattttact gttgatctga tggaaaacgc	2400
ggcgaagcaa ttttaacaaca ttggcgcgac gactcctgtt gttccatttc gtattttgct	2460
gtcacctgt ggtaatgccg tttctgccgt aaagggtggg tttactggcg ttgcagatag	2520
ccacaatgcc aacctgcttg cacttgaaaa tacggtgtca gcggcttcgg gactgggaat	2580
acagcttctg aatgagcagc aaaatcaaat accccttaat gctccatcgt ccgcgcttcc	2640
gtggacgacc ctgacgccgg gtaaaccaaa tacgctgaat ttttacgcc ggctaattggc	2700
gacacagggtg cctgtcactg cggggcatat caatgccacg gctaccttca ctcttgaata	2760
tcagtaactg gagatgctca tgaaatggtg caaacgtggg tatgtattgg cggcaatatt	2820
ggcgtcgcga agtgcgacga tacaggcagc cgatgtcacc atcacggtga acggtaaggt	2880
cgctgcctaaa ccgtgtacgg tttccaccac caatgccacg gttgatctcg gcgatcttta	2940
ttctttcagt ctatgtctg ccggggcggc atcggcctgg catgatgttg cgcttgagtt	3000
gactaattgt ccggtgggaa cgtcgagggt cactgccagc ttcagcgggg cagccgacag	3060
taccggatat tataaaaacc aggggaccgc gcaaaacatc cagttagagc tacaggatga	3120
cagtggcaac acattgaata ctggcgcaac caaacagtt caggtggatg attcctcaca	3180
atcagcgcac ttcccgttac aggtcagagc attgacagta aatggcggag ccaactcagg	3240
aaccattcag gcagtgatta gcatcaccta tacctacagc tgaaccgaa gagatgattg	3300

taatgaaacg agttattacc ctgtttgctg tactgctgat gggctggctg gtaaatagcct	3360
ggtcattcgc ctgtaaaacc gccaatggta ccgctatccc tattggcggg ggcagcgcca	3420
atgtttatgt aaaccttgcg cccgctcgta atgtggggca aaacctgggc gtggatcttt	3480
cgacgcaaat cttttgccat aacgattatc cggaaaccat tacagactat gtcacactgc	3540
aacgaggctc ggcttatggc ggcgtgttat ctaatttttc cgggaccgta aaatatagtg	3600
gcagtagcta tccatttcct accaccagcg aaacgcgcgc cgttgtttat aattcgagaa	3660
cggataagcc gtggccggcg gcgctttatt tgacgcctgt gagcagtgcg ggcgggggtgg	3720
cgattaaagc tggctcatta attgccgtgc ttattttgcg acagaccaac aactataaca	3780
gcgatgattt ccagtttgctg tgggaatattt acgccaataa tgatgtggcg gtgcctactg	3840
gcggctgcga tgtttctgct cgtgatgtca ccgttactct gccggactac cctggttcag	3900
tgccaattcc tcttaccgtt tattgtgcga aaagccaaaa cctgggggtat tacctctccg	3960
gcacaaccgc agatgcgggc aactcgattt tcaccaatac cgcgtcgttt tcacctgcac	4020
agggcgctcg cgtacagttg acgcgcaacg gtacgattat tccagcgaat aacacgggat	4080
cgttaggagc agtagggact tcggcgggtga gtctgggatt aacggcaaat tatgcacgta	4140
ccggagggca ggtgactgca gggaatgtgc aatcgattat tggcgtgact tttgtttatc	4200
aataatctag aggatccccg ggtaccgagc tcgaattcac tggccgtcgt tttacaacgt	4260
cgtgactggg aaaaccctgg cgttacccaa cttaatcgcc ttgcagcaca tccccctttc	4320
gccagctggc gtaatagcga agaggccgc accgatcgcc cttcccaaca gttgcgcagc	4380
ctgaatggcg aatggcgctt gatgcgggat tttctcctta cgcactctgt cggtatttca	4440
caccgcatac ggtgcactct cagtacaatc tgctctgatg ccgcatagtt aagccagccc	4500
cgacaccgc caacaccgc tgacgcgccc tgacgggctt gtctgctccc ggcacccgct	4560
tacagacaag ctgtgaccgt ctccgggagc tgcattgtgc agaggttttc accgtcatca	4620
ccgaaacgcg cgagacg	4637

<210> 205  
 <211> 9299  
 <212> DNA  
 <213> pFIMAICDFGH

<400> 205	
cgagacgaaa gggcctcgtg atacgcctat ttttataggt taatgtcatg ataataatgg	60
tttcttagac gtcagggtggc acttttcggg gaaatgtgcg cggaaccctt atttgtttat	120
ttttctaaat acattcaaat atgtatccgc tcatgagaca ataaccctga taaatgcttc	180
aataatattg aaaaaggaag agtatgagta ttcaacattt ccgtgtcgcc cttattccct	240

tttttgcggc attttgccct cctgtttttg ctcacccaga aacgctggtg aaagtaaaag	300
atgctgaaga tcagttgggt gcacgagtgg gttacatcga actggatctc aacagcggta	360
agatccttga gagttttcgc cccgaagaac gttttccaat gatgagcaact tttaaagttc	420
tgctatgtgg cgcggtatta tcccgtattg acgccgggca agagcaactc ggtcgccgca	480
tacactattc tcagaatgac ttggttgagt actcaccagt cacagaaaag catcttacgg	540
atggcatgac agtaagagaa ttatgcagtg ctgccataac catgagtgat aacactgcgg	600
ccaacttact tctgacaacg atcggaggac cgaaggagct aaccgctttt ttgcacaaca	660
tgggggatca tgtaactcgc cttgatcggt gggaaccgga gctgaatgaa gccataccaa	720
acgacgagcg tgacaccacg atgcctgtag caatggcaac aacgttgcg aaactattaa	780
ctggcgaact acttactcta gcttcccggc aacaattaat agactggatg gaggcggata	840
aagttgcagg accacttctg cgctcggccc ttccggctgg ctggtttatt gctgataaat	900
ctggagccgg tgagcgtggg tctcgcggtg tcattgcagc actggggcca gatggtaagc	960
cctcccgtat cgtagttatc tacacgacgg ggagtcaggc aactatggat gaacgaaata	1020
gacagatcgc tgagataggt gcctcactga ttaagcattg gtaactgtca gaccaagttt	1080
actcatatat acttttagatt gatttaaaac ttcattttta atttaaaagg atctaggtga	1140
agatcctttt tgataatctc atgacaaaaa tcccttaacg tgagttttcg ttccactgag	1200
cgtcagaccc cgtagaaaag atcaaaggat cttcttgaga tccttttttt ctgcgcgtaa	1260
tctgctgctt gcaaacaaaa aaaccaccgc taccagcggg ggtttgtttg ccggatcaag	1320
agctaccaac tctttttccg aaggtaactg gcttcagcag agcgcagata ccaaatactg	1380
tccttctagt gtagccgtag ttaggccacc acttcaagaa ctctgtagca ccgcctacat	1440
acctcgctct gctaatcctg ttaccagtgg ctgctgccag tggcgataag tcgtgtctta	1500
ccgggttgga ctcaagacga tagttaccgg ataaggcgca gcggtcgggc tgaacg999g	1560
gttcgtgcac acagcccagc ttggagcgaa cgacctacac cgaactgaga tacctacagc	1620
gtgagctatg agaaagcgcc acgcttcccg aaggagagaaa ggcggacagg tatccggtaa	1680
gcggcagggt cggaacagga gagcgcacga gggagcttcc aggggggaaac gcctggatatc	1740
tttatagtcc tgtcgggttt cgccacctct gacttgagcg tcgatttttg tgatgctcgt	1800
cagggggggc gagcctatgg aaaaacgcca gcaacgcggc ctttttacgg ttccctggcct	1860
tttgctggcc ttttgctcac atgttctttc ctgcgttate ccctgattct gtggataacc	1920
gtattaccgc ctttgagtga gctgataccg ctcccgagc ccgaacgacc gagcgcagcg	1980
agtcagtgag cgaggaagcg gaagagcgcc caatacgcaa accgcctctc cccgcgcgtt	2040

ggccgattca ttaatgcagc tggcacgaca ggtttcccga ctggaaagcg ggcagtgagc	2100
gcaacgcaat taatgtgagt tagctcactc attaggcacc ccaggcttta cactttatgc	2160
ttccggctcg tatgttgtgt ggaattgtga gcggataaca atttcacaca ggaaacagct	2220
atgaccatga ttacgccaag cttataatag aaatagtttt ttgaaaggaa agcagcatga	2280
aaattaaaac tctggcaatc gttgttctgt cggctctgtc cctcagttct acagcggctc	2340
tggccgctgc cacgacgggt aatggtggga ccgttcactt taaaggggaa gttgttaacg	2400
ccgcttgccg agttgatgca ggctctgttg atcaaaccgt tcagtttagga caggttcgta	2460
ccgcatcgct ggacacaggaa ggagcaacca gttctgctgt cggttttaac attcagctga	2520
atgattgcga taccaatggt gcatctaaag ccgctgttgc ctttttaggt acggcgattg	2580
atgcgggtca taccaacggt ctggctctgc agagttcagc tgcgggtagc gcaacaaacg	2640
ttggtgtgca gatcctggac agaacgggtg ctgcgctgac gctggatggt gcgacattta	2700
gttcagaaac aaccctgaat aacggaacca ataccattcc gttccaggcg cgttattttg	2760
caaccggggc cgcaaccccg ggtgctgcta atgcggatgc gaccttcaag gttcagtatc	2820
aataacctac ccaggttcag ggacgtcatt acgggcaggg atgccaccc ttgtgcgata	2880
aaaataacga tgaaaaggaa gagattatct ctattagcgt cgttgctgcc aatgtttgct	2940
ctggccggaa ataaatggaa taccacgttg cccggcggaa atatgcaatt tcagggcgtc	3000
attattgcgg aaacttgccg gattgaagcc ggtgataaac aaatgacggt caatatgggg	3060
caaatcagca gtaaccggtt tcatgcggtt ggggaagata gcgcaccggt gccttttggt	3120
attcatttac gggaatgtag cacggtggtg agtgaacgtg taggtgtggc gtttcacggt	3180
gtcgcggatg gtaaaaaatcc ggatgtgctt tccgtgggag aggggcccagg gatagccacc	3240
aatattggcg tagcgttggt tgatgatgaa ggaaacctcg taccgattaa tcgtcctcca	3300
gcaaactgga aacggcttta ttcaggctct acttcgctac atttcacgc caaatatcgt	3360
gctaccgggc gtcgggttac tggcggcatc gccaatgccc aggcctggtt ctctttaacc	3420
tatcagtaat tgttcagcag ataatgtgat aacaggaaca ggacagtgag taataaaaaac	3480
gtcaatgtaa ggaaatcgca ggaaataaca ttctgcttgc tggcaggtat cctgatgttc	3540
atggcaatga tggttgccgg acgcgctgaa gcgggagtgg ccttaggtgc gactcgcgta	3600
atztatccgg caggggcaaaa acaagagcaa cttgccgtga caaataatga tgaaaatagt	3660
acctatttaa ttcaatcatg ggtggaaaat gccgatggtg taaaggatgg tcgttttatc	3720
gtgacgcctc ctctgtttgc gatgaaggga aaaaaagaga ataccttacg tattcttgat	3780
gcaacaaata accaattgcc acaggaccgg gaaagtatat tctggatgaa cgtaaagcg	3840
attccgtcaa tggataaatc aaaattgact gagaatacgc tacagctcgc aattatcagc	3900

cgcattaaac	tgtactatcg	cccggctaaa	ttagcgttgc	cacccgatca	ggccgcagaa	3960
aaattaagat	ttcgtcgtag	cgcgaattct	ctgacgctga	ttaacccgac	accctattac	4020
ctgacggtaa	cagagttgaa	tgccggaacc	cgggttcttg	aaaatgcatt	ggtgcctcca	4080
atgggcgaaa	gcacggttaa	attgccttct	gatgcaggaa	gcaatattac	ttaccgaaca	4140
ataaatgatt	atggcgcaact	tacccccaaa	atgacgggcg	taatggaata	acgcaggggg	4200
aatttttcgc	ctgaataaaa	agaattgact	gccgggggtga	ttttaagccg	gaggaataat	4260
gtcataatctg	aatttaagac	tttaccagcg	aaacacacaa	tgcttgcata	ttcgtaagca	4320
tcgttttggt	ggtttttttg	tccgaactcg	tgtcgcctgt	gcttttgccg	cacaggcacc	4380
tttgtcatct	gccgacctct	attttaatcc	gcgcttttta	gcggatgatc	cccaggctgt	4440
ggccgattta	tcgcgttttg	aaaatgggca	agaattaccg	ccagggacgt	atcgcgctga	4500
tatctatttg	aataatgggt	atatggcaac	gcgtgatgtc	acatttaata	cgggcgacag	4560
tgaacaaggg	attgttcctt	gcctgacacg	cgcgcaactc	gccagtatgg	ggctgaatac	4620
ggcttctgtc	gccggtatga	atctgctggc	ggatgatgcc	tgtgtgccat	taaccacaat	4680
ggccaggac	gctactgcgc	atctggatgt	tggtcagcag	cgactgaacc	tgacgatccc	4740
tcaggcatth	atgagtaatc	gcgcgcgtgg	ttatatctct	cctgagttat	gggatcccgg	4800
tattaatgcc	ggattgctca	attataatth	cagcggaaat	agtgtacaga	atcggattgg	4860
gggtaacagc	cattatgcat	atttaaacct	acagagtggg	ttaaataattg	gtgcgtggcg	4920
tttacgcgac	aataccacct	ggagttataa	cagtagcgac	agatcatcag	gtagcaaaaa	4980
taaatggcag	catatcaata	cctggcttga	gcgagacata	ataccgttac	gttcccggct	5040
gacgctgggt	gatggttata	ctcaggcgca	tattttcgat	ggtattaact	ttcgcggcgc	5100
acaattggcc	tcagatgaca	atatgttacc	cgatagtcaa	agaggatttg	ccccgggtgat	5160
ccacgggtatt	gctcgtggta	ctgcacagggt	cactattaaa	caaaatgggt	atgacattta	5220
taatagtacg	gtgccaccgg	ggcctttttac	catcaacgat	atctatgccg	caggtaatag	5280
tggtgacttg	caggtaacga	tcaaagaggc	tgacggcagc	acgcagattt	ttaccgtacc	5340
ctattcgtca	gtcccgtttt	tgcaacgtga	agggcatact	cgttattcca	ttacggcagg	5400
agaataccgt	agtggaaatg	cgcagcagga	aaaaacccgc	tttttccaga	gtacattact	5460
ccacggcctt	ccggctgggt	ggacaatata	tggtggaacg	caactggcgg	atcggttatcg	5520
tgcttttaat	ttcggtatcg	ggaaaaacat	gggggcactg	ggcgctctgt	ctgtggatat	5580
gacgcaggct	aattccacac	ttcccgatga	cagtcagcat	gacggacaat	cgggtgcgttt	5640
tctctataac	aaatcgctca	atgaatcagg	cacgaatatt	cagttagtgg	gttaccgtta	5700

ttcgaccagc ggatatttta atttcgctga tacaacatac agtcgaatga atggctacaa	5760
cattgaaaca caggacggag ttattcaggt taagccgaaa ttcaccgact attacaacct	5820
cgcttataac aaacgcggga aattacaact caccgttact cagcaactcg ggcgcacatc	5880
aacactgtat ttgagtggta gccatcaaac ttattgggga acgagtaatg tcatgagca	5940
attccaggct ggattaaata ctgcgttcga agatatcaac tggacgctca gctatagcct	6000
gacgaaaaac gcctggcaaa aaggacggga tcagatgtta gcgcttaacg tcaatatcc	6060
tttcagccac tggctgcgtt ctgacagtaa atctcagtgg cgacatgcca gtgccagcta	6120
cagcatgtca cacgatctca acggtcggat gaccaatctg gctggtgtat acggtacgtt	6180
gctggaagac aacaacctca gctatagcgt gcaaaccggc tatgccgggg gaggcgatgg	6240
aaatagcggga agtacaggct acgccacgct gaattatcgc ggtgggttacg gcaatgccaa	6300
tatcggttac agccatagcg atgatattaa gcagctctat tacggagtca gcggtgggggt	6360
actggctcat gccaatggcg taacgctggg gcagccgtta aacgatacgg tgggtgcttgt	6420
taaagcgctt ggcgcaaaag atgcaaaagt cgaaaaccag acggggggtgc gtaccgactg	6480
gcgtgggttat gccgtgctgc cttatgccac tgaatatcgg gaaaatagag tggcgctgga	6540
taccaatacc ctggctgata acgtcgattt agataacgcg gttgctaacg ttgttcccac	6600
tcgtggggcg atcgtagcag cagagtttaa agcgcgcgtt gggataaaac tgctcatgac	6660
gctgaccac aataataagc cgctgccgtt tggggcgatg gtgacatcag agagtagcca	6720
gagtagcggc attgttgccg ataatgggtca ggtttacctc agcggaatgc ctttagcggg	6780
aaaagttcag gtgaaatggg gagaagagga aaatgctcac tgtgtcgcca attatcaact	6840
gccaccagag agtcagcagc agttattaac ccagctatca gctgaatgtc gttaaggggg	6900
cgtgatgaga aacaaacctt tttatcttct gtgcgctttt ttgtggctgg cggtagtca	6960
cgctttggct gcggatagca cgattactat ccgcggctat gtcagggata acggctgtag	7020
tgtggccgct gaatcaacca attttactgt tgatctgatg gaaaacgcgg cgaagcaatt	7080
taacaacatt ggcgcgacga ctctgttgt tccatttcgt attttgetgt caccctgtgg	7140
taatgccgtt tctgccgtaa aggttgggtt tactggcgtt gcagatagcc acaatgccaa	7200
cctgcttgca cttgaaaata cgggtgtcagc ggcttcggga ctgggaatac agcttctgaa	7260
tgagcagcaa aatcaaatac cccttaatgc tccatcgcc gcgctttcgt ggacgaccct	7320
gacgccgggt aaaccaaata cgctgaattt ttacgcccgg ctaatggcga cacagggtgcc	7380
tgtcactgcg gggcatatca atgccacggc taccttact cttgaatatc agtaactgga	7440
gatgctcatg aaatgggtgca aacgtgggta tgtattggcg gcaatatgg cgctcgcaag	7500
tcgcagcata caggcagccg atgtcaccat caggtgaac ggtaagggtcg tcgccaacc	7560

gtgtaegggt tccaccacca atgccacggt tgatctcggc gatctttatt ctttcagtct 7620  
tatgtctgcc ggggcggcat cggcctggca tgatgttgcg cttgagttga ctaattgtcc 7680  
ggtgggaacg tcgaggggtca ctgccagctt cagcggggca gccgacagta ccggatatta 7740  
taaaaaccag gggaccgcgc aaaacatcca gttagagcta caggatgaca gtggcaacac 7800  
attgaatact ggcgcaacca aaacagttca ggtggatgat tcctcacaat cagcgcactt 7860  
cccgttacag gtcagagcat tgacagtaaa tggcggagcc actcaggga ccattcaggc 7920  
agtgattagc atcacctata cctacagctg aaccogaaga gatgattgta atgaaacgag 7980  
ttattaccct gtttgctgta ctgctgatgg gctggtcggg aaatgcctgg tcattcgcct 8040  
gtaaaaccgc caatggtacc gctatcccta ttggcgggtg cagcgccaat gtttatgtaa 8100  
accttgccgc cgtcgtgaat gtggggcaaa acctggtcgt ggatctttcg acgcaaactc 8160  
tttgccataa cgattatccg gaaaccatta cagactatgt cacactgcaa cgaggctcgg 8220  
cttatggcgg cgtgttatct aatttttccg ggaccgtaaa atatagtggc agtagctatc 8280  
catttcctac caccagcgaa acgcgcgcgc ttgtttataa ttcgagaacg gataagccgt 8340  
ggccgggtggc gctttatttg acgcctgtga gcagtgcggg cggggtggcg attaaagctg 8400  
gctcattaat tgccgtgctt attttgcgac agaccaacaa ctataacagc gatgatttcc 8460  
agtttgtgtg gaatatttac gccataatg atgtggtggt gcctactggc ggctgcgatg 8520  
tttctgctcg tgatgtcacc gttactctgc cggactaccc tggttcagtg ccaattcctc 8580  
ttaccgttta ttgtgcgaaa agccaaaacc tggggtatta cctctccggc acaaccgcag 8640  
atgcgggcaa ctcgattttc accaataccg cgtcgttttc acctgcacag ggcgtcggcg 8700  
tacagttgac gcgcaacggt acgattatc cagcgaataa cacggtatcg ttaggagcag 8760  
tagggacttc ggcggtgagt ctgggattaa cggcaaatta tgcacgtacc ggagggcagg 8820  
tgactgcagg gaatgtgcaa tcgattattg gcgtgacttt tgtttatcaa taatctagaa 8880  
ggatccccgg gtaccgagct cgaattcact ggccgtcgtt ttacaacgtc gtgactggga 8940  
aaaccctggc gttacccaac ttaatcgctt tgcagcacat cccctttcg ccagctggcg 9000  
taatagcgaa gaggcccgca ccgatcgccc ttcccaacag ttgcgcagcc tgaatggcga 9060  
atggcgcttg atgcggtatt ttctccttac gcactctgtg ggtattttac accgcatatg 9120  
gtgcactctc agtacaatct gctctgatgc cgcatagtta agccagcccc gacaccgcgc 9180  
aacaccgcgt gacgcgccct gacgggcttg tctgctcccg gcacccgctt acagacaagc 9240  
tgtgaccgtc tccgggagct gcattgtgca gaggttttca ccgtcatcac cgaaacgcg 9299

<211> 8464

<212> DNA

<213> pFIMAICDFG

<400> 206

cgagacgaaa gggcctcgtg atacgcctat ttttataggt taatgtcatg ataataatgg	60
tttcttagac gtcaggtggc acttttcggg gaaatgtgcg cggaaccctt atttgtttat	120
ttttctaaat acattcaaat atgtatccgc tcatgagaca ataaccctga taaatgcttc	180
aataatattg aaaaaggaag agtatgagta ttcaacattt ccgtgtcgcc cttattccct	240
tttttgcggc attttgccct cctgtttttg ctcaccaga aacgctggtg aaagtaaaag	300
atgctgaaga tcagttgggt gcacgagtg gttacatcga actggatctc aacagcggta	360
agatccttga gagttttcgc cccgaagaac gttttccaat gatgagcact tttaaagtcc	420
tgctatgtgg cgcggtatta tcccgattg acgcggggca agagcaactc ggtcgccgca	480
tacactattc tcagaatgac ttggttgagt actcaccagt cacagaaaag catcttacgg	540
atggcatgac agtaagagaa ttatgcagtg ctgccataac catgagtgat aacactgcgg	600
ccaacttact tctgacaacg atcggaggac cgaaggagct aaccgctttt ttgcacaaca	660
tgggggatca tgtaactcgc cttgatcggt gggaaccgga gctgaatgaa gccataccaa	720
acgacgagcg tgacaccacg atgcctgtag caatggcaac aacgttgcg aaactattaa	780
ctggcgaact acttactcta gcttcccggc aacaattaat agactggatg gaggcggata	840
aagttgcagg accacttctg cgctcgggcc ttcgggtggt ctggtttatt gctgataaat	900
ctggagccgg tgagcgtggg tctcgcggtc tcattgcagc actggggcca gatggtaagc	960
cctcccgat cgtagttatc tacacgacgg ggagtcaggc aactatggat gaacgaaata	1020
gacagatcgc tgagataggt gcctcactga ttaagcattg gtaactgtca gaccaagttt	1080
actcatatat acttttagatt gattttaaac ttcattttta atttaaaagg atctaggtga	1140
agatcctttt tgataatctc atgacaaaaa tcccttaacg tgagttttcg ttccactgag	1200
cgtcagaccc cgtagaaaag atcaaaggat cttcttgaga tccttttttt ctgcgcgtaa	1260
tctgctgctt gcaaacaaaa aaaccaccgc taccagcggg ggtttgtttg ccggatcaag	1320
agctaccaac tctttttccg aaggtaactg gcttcagcag agcgcagata ccaaatactg	1380
tccttctagt gtagccgtag ttaggccacc acttcaagaa ctctgtagca ccgcctacat	1440
acctcgctct gctaactctg ttaccagtgg ctgctgccag tggcgataag tcgtgtctta	1500
ccgggttgga ctcaagacga tagttaccgg ataaggcgca gcggtcgggc tgaacggggg	1560
gttcgtgcac acagcccagc ttggagcgaa cgacctacac cgaactgaga tacctacagc	1620
gtgagctatg agaaagcgcc acgcttcccg aaggagaaaa ggcggacagg tatccggtaa	1680



gcggcaggggt	cggaacagga	gagcgcacga	gggagcttcc	agggggaaac	gcctgggtatc	1740
tttatagtc	tgtcggggtt	cgccacctct	gacttgagcg	tcgatttttg	tgatgctcgt	1800
caggggggcg	gagcctatgg	aaaaacgcca	gcaacgcggc	ctttttacgg	ttcctggcct	1860
tttgctggcc	ttttgctcac	atgttctttc	ctgcgttatc	ccctgattct	gtggataacc	1920
gtattaccgc	ctttgagtga	gctgataccg	ctcgccgcag	ccgaacgacc	gagcgcagcg	1980
agtcagtgag	cgaggaagcg	gaagagcgcc	caatacgcaa	accgcctctc	cccgcgcgtt	2040
ggccgattca	ttaatgcagc	tggcacgaca	ggtttcccga	ctggaaagcg	ggcagtgagc	2100
gcaacgcaat	taatgtgagt	tagctcactc	attaggcacc	ccaggcttta	cactttatgc	2160
ttccggctcg	tatgttgtgt	ggaattgtga	gcgataaaca	atttcacaca	ggaaacagct	2220
atgaccatga	ttacgccaag	cttataatag	aaatagtttt	ttgaaaggaa	agcagcatga	2280
aaattaaaac	tctggcaatc	gttgttctgt	cggctctgtc	cctcagttct	acagcggctc	2340
tggccgctgc	cacgacggtt	aatggtggga	ccgttcactt	taaaggggaa	gttggttaacg	2400
ccgcttgccg	agttgatgca	ggctctgttg	atcaaaccgt	tcagttagga	cagggttcgta	2460
ccgcacgct	ggcacaggaa	ggagcaacca	gttctgctgt	cggttttaac	attcagctga	2520
atgattgcga	taccaatggt	gcactctaaag	ccgctgttgc	cttttttaggt	acggcgattg	2580
atgcggttca	taccaacggt	ctggctctgc	agagttcagc	tgcgggtagc	gcaacaaaacg	2640
ttggtgtgca	gacccctggac	agaacgggtg	ctgcgctgac	gctggatggt	gcgacattta	2700
gttcagaaaac	aaccctgaat	aacggaacca	ataccattcc	gttcaggcg	cgttatatttg	2760
caaccggggc	cgcaaccccg	ggtgctgcta	atgcggatgc	gaccttcaag	gttcagtatc	2820
aataacctac	ccaggttcag	ggacgtcatt	acgggcaggg	atgccaccc	ttgtgcgata	2880
aaaataacga	tgaaaaggaa	gagattatct	ctattagcgt	cgttgctgcc	aatgtttgct	2940
ctggccggaa	ataaatggaa	taccacgttg	cccggcggaa	atatgcaatt	tcagggcgtc	3000
attattgcgg	aaacttgccg	gattgaagcc	ggtgataaac	aatgacgggt	caatatgggg	3060
caaatcagca	gtaaccggtt	tcattgcggtt	ggggaagata	gcgcaccggt	gccttttggt	3120
attcatttac	gggaatgtag	cacggtggtg	agtgaacgtg	taggtgtggc	gtttcacggt	3180
gtcgcggtg	gtaaaaatcc	ggatgtgctt	tccgtgggag	aggggccagg	gatagccacc	3240
aatattggcg	tagcgttggt	tgatgatgaa	ggaaacctcg	taccgattaa	tcgtcctcca	3300
gcaaactgga	aacggcttta	ttcaggctct	acttcgctac	atttcacgcg	caaatatcgt	3360
gctaccgggc	gtcgggttac	tggcggcatc	gccaatgccc	aggcctgggt	ctctttaacc	3420
tatcagtaat	tgttcagcag	ataatgtgat	aacaggaaca	ggacagtgag	taataaaaac	3480
gtcaatgtaa	ggaaatcgca	ggaaataaca	ttctgcttgc	tggcaggtat	cctgatgttc	3540

atggcaatga tggttgccgg acgcgctgaa gcgggagtgg ccttaggtgc gactcgcgta	3600
atztatccgg cagggcaaaa acaagagcaa cttgccgtga caaataatga tgaaaatagt	3660
acctatttaa ttcaatcatg ggtggaaaat gccgatggtg taaaggatgg tcgttttattc	3720
gtgacgcctc ctctgtttgc gatgaagga aaaaaagaga ataccttacg tattcttgat	3780
gcaacaaata accaattgcc acaggaccgg gaaagtttat tctggatgaa cgttaaagcg	3840
attccgtcaa tggataaatc aaaattgact gagaatacgc tacagctcgc aattatcagc	3900
cgcattaaac tgtactatcg cccggctaaa ttagcggtgc caccgatca ggccgcagaa	3960
aaattaagat ttctgcgtag cgcgaattct ctgacgctga ttaacccgac accctattac	4020
ctgaācggtaa cagagttgaa tgccggaacc cgggttcttg aaaatgcatt ggtgcctcca	4080
atgggcgaaa gcacggttaa attgccttct gatgcaggaa gcaatattac ttaccgaaca	4140
ataaatgatt atggcgcact tcccccaaa atgacgggcg taatggaata acgcaggggg	4200
aatttttcgc ctgaataaaa agaattgact gccggggtga ttttaagccg gaggaataat	4260
gtcatatctg aatttaagac tttaccagcg aaacacacaa tgcttgcata ttcgtaagca	4320
tcgtttggct ggtttttttg tccgactcgt tctgcctgt gcttttgccg cacaggcacc	4380
tttgtcatct gccgacctct attttaatcc gcgcttttta gcggatgatc cccaggctgt	4440
ggccgattta tcgcgttttg aaaatgggca agaattaccg ccagggacgt atcgcgtcga	4500
tatctatttg aataatggtt atatggcaac gcgtgatgtc acatttaata cgggcgacag	4560
tgaacaaggg attgttcctt gcctgacacg cgcgcaactc gccagtatgg ggctgaatac	4620
ggcttctgtc gccggtatga atctgctggc ggatgatgcc tgtgtgccat taaccacaat	4680
ggctccaggac gctactgcgc atctggatgt tggtcagcag cgactgaacc tgacgatccc	4740
tcaggcattt atgagtaatc gcgcgcgtgg ttatatctct cctgagttat gggatcccgg	4800
tattaatgcc ggattgctca attataattt cagcggaat agtgtacaga atcggattgg	4860
gggtaacagc cattatgcat atttaaact acagagtggg ttaaattattg gtgcgtggcg	4920
tttacgcgac aataccacct ggagttataa cagtagcgac agatcatcag gtagcaaaaa	4980
taaatggcag catatcaata cctggcttga gcgagacata ataccgttac gttcccggt	5040
gacgctgggt gatggttata ctcagggcga ttttttcgat ggtatttaact ttcgcggcgc	5100
acaattggcc tcagatgaca atatgttacc cgatagtcaa agaggatttg ccccggtgat	5160
ccacggtatt gctcgtggta ctgcacaggt cactattaaa caaatgggt atgacattta	5220
taatagtacg gtgccaccgg gcccttttac catcaacgat atctatgccg caggtaatag	5280
tggtgacttg caggtaacga tcaaagaggc tgacggcagc acgcagattt ttaccgtacc	5340

ctattcgtca	gtcccgcttt	tgcaacgtga	agggcatact	cgttattcca	ttacggcagg	5400
agaataccgt	agtggaaatg	cgcagcagga	aaaaacccgc	tttttccaga	gtacattact	5460
ccacggcctt	ccggctggct	ggacaatata	tggtggaacg	caactggcgg	atcggtatcg	5520
tgccttttaat	ttcgggtatcg	ggaaaaacat	gggggcactg	ggcgcctctgt	ctgtggatat	5580
gacgcaggct	aattccacac	ttcccgatga	cagtcagcat	gacggacaat	cgggtgcgttt	5640
tctctataac	aaatcgctca	atgaatcagg	cacgaatatt	cagttagtgg	gttaccgtta	5700
ttcgaccagc	ggatatttta	atttcgctga	tacaacatac	agtcgaatga	atggctacaa	5760
cattgaaaca	caggacggag	ttattcaggt	taagccgaaa	ttcaccgact	attacaacct	5820
cgtttataac	aaacgcggga	aattacaact	caccgttact	cagcaactcg	ggcgcacatc	5880
aacactgtat	ttgagtggta	gccatcaaac	ttattggggg	acgagtaatg	tcgatgagca	5940
attccaggct	ggattaaata	ctgcgttcga	agatatcaac	tggacgctca	gctatagcct	6000
gacgaaaaac	gcctggcaaa	aaggacggga	tcagatgtta	gcgcttaacg	tcaatattcc	6060
tttcagccac	tggctgcgtt	ctgacagtaa	atctcagtgg	cgacatgcca	gtgccagcta	6120
cagcatgtca	cacgatctca	acggtcggat	gaccaatctg	gctggtgtat	acggtacgtt	6180
gctggaagac	aacaacctca	gctatagcgt	gcaaaccggc	tatgccgggg	gaggcgatgg	6240
aaatagcgga	agtacaggct	acgccacgct	gaattatcgc	ggtgggttacg	gcaatgccaa	6300
tatcggttac	agccatagcg	atgatattaa	gcagctctat	tacggagtca	gcggtgggggt	6360
actggctcat	gccaatggcg	taacgctggg	gcagccgtta	aacgatacgg	tgggtgcttgt	6420
taaagcgcct	ggcgcaaaag	atgcaaaagt	cgaaaaccag	acgggggtgc	gtaccgactg	6480
gcgtgggttat	gccgtgctgc	cttatgccac	tgaatatcgg	gaaaatagag	tggcgctgga	6540
taccaatacc	ctggctgata	acgtcgatth	agataacgcg	gttgctaacg	ttgttcccac	6600
tcgtggggcg	atcgtgcgag	cagagtthaa	agcgcgcgtt	gggataaaac	tgctcatgac	6660
gctgaccac	aataataagc	cgctgccgtt	tggggcgatg	gtgacatcag	agagtagcca	6720
gagtagcggc	attgttgcg	ataatgggtca	ggtttacctc	agcggaatgc	ctttagcggg	6780
aaaagttcag	gtgaaatggg	gagaagagga	aaatgctcac	tgtgtcgcca	attatcaact	6840
gccaccagag	agtcagcagc	agttattaac	ccagctatca	gctgaatgtc	gttaaggggg	6900
cgtgatgaga	aacaaacctt	tttatcttct	gtgcgctttt	ttgtggctgg	cggtagtca	6960
cgttttggt	gcggatagca	cgattactat	ccgcggctat	gtcagggata	acggctgtag	7020
tgtggccgct	gaatcaacca	attttactgt	tgatctgatg	gaaaacgcgg	cgaagcaatt	7080
taacaacatt	ggcgcgacga	ctcctgttgt	tccatttcgt	attttgctgt	caccctgtgg	7140
taatgccgtt	tctgccgtaa	aggttgggtt	tactggcggt	gcagatagcc	acaatgccaa	7200

```

cctgcttgca cttgaaaata cggtgtcagc ggcttcggga ctgggaatac agcttctgaa 7260
tgagcagcaa aatcaaatac cccttaatgc tccatcgtcc gcgctttcgt ggacgaccct 7320
gacgccgggt aaaccaaata cgctgaattt ttacgcccg ctaatggcga cacagggtgcc 7380
tgtcactgcg gggcatatca atgccacggc taccttcaact cttgaatatc agtaactgga 7440
gatgctcatg aaatgggtgca aacgtgggta tgtattggcg gcaatattgg cgctcgcaag 7500
tgcgacgata caggcagccg atgtcaccat cacggtgaac ggtaaggctc tcgccaacc 7560
gtgtacgggt tccaccacca atgccacggg tgatctcggc gatctttatt ctttcagtct 7620
tatgtctgcc ggggcggcat cggcctggca tgatgttgcg cttgagttga ctaattgtcc 7680
gggtgggaacg tcgagggtca ctgccagctt cagcggggca gccgacagta ccggatatta 7740
taaaaaccag gggaccgcgc aaaacatcca gttagagcta caggatgaca gtggcaacac 7800
attgaatact ggcgcaacca aaacagttca ggtggatgat tcctcacaat cagcgcactt 7860
cccgttacag gtcagagcat tgacagtaaa tggcggagcc actcagggaa ccattcaggg 7920
agtgattagc atcacctata cctacagctg aacccgaaga gatgattgta atgaaacgag 7980
ttattaccct gtttgctgta ctgctgatgg gctggtcggg aaatgcctgg tcattcgcct 8040
gtaaaaccgc caatgggtacc gagctcgaat tcaactggccg tcgttttaca acgtcgtgac 8100
tgggaaaacc ctggcgttac ccaacttaat cgccttgtag cacatcccc tttcgccagc 8160
tggcgtaata gcgaagaggc ccgcaccgat cgccttccc aacagttgag cagcctgaat 8220
ggcgaatggc gcctgatgag gtattttctc cttacgcata tgtgcggtat ttcacaccgc 8280
atatgggtgca ctctcagtac aatctgctct gatgccgcat agttaagcca gccccgacac 8340
ccgccaacac ccgtgacgc gccctgacgg gcttgtctgc tcccggcata cgcttacaga 8400
caagctgtga ccgtctccgg gagctgcatg tgtcagaggt tttcacgctc atcacgaaa 8460
cgcg

```

```

<210> 207
<211> 13
<212> PRT
<213> Ce3epitope

```

```

<400> 207
Cys Gly Gly Val Asn Leu Thr Trp Ser Arg Ala Ser Gly
  1                      5                      10

```

```

<210> 208
<211> 13
<212> PRT
<213> Ce3mimotope

```

<400> 208  
Cys Gly Gly Val Asn Leu Pro Trp Ser Phe Gly Leu Glu  
1 5 10

<210> 209  
<211> 9  
<212> PRT  
<213> Bee venom phospholipase A2 cloning vector

<400> 209  
Ala Ala Ala Ser Gly Gly Cys Gly Gly  
1 5

<210> 210  
<211> 145  
<212> PRT  
<213> PLA2 fusion protein

<400> 210  
Met Ala Ile Ile Tyr Pro Gly Thr Leu Trp Cys Gly His Gly Asn Lys  
1 5 10 15  
Ser Ser Gly Pro Asn Glu Leu Gly Arg Phe Lys His Thr Asp Ala Cys  
20 25 30  
Cys Arg Thr Gln Asp Met Cys Pro Asp Val Met Ser Ala Gly Glu Ser  
35 40 45  
Lys His Gly Leu Thr Asn Thr Ala Ser His Thr Arg Leu Ser Cys Asp  
50 55 60  
Cys Asp Asp Lys Phe Tyr Asp Cys Leu Lys Asn Ser Ala Asp Thr Ile  
65 70 75 80  
Ser Ser Tyr Phe Val Gly Lys Met Tyr Phe Asn Leu Ile Asp Thr Lys  
85 90 95  
Cys Tyr Lys Leu Glu His Pro Val Thr Gly Cys Gly Glu Arg Thr Glu  
100 105 110  
Gly Arg Cys Leu His Tyr Thr Val Asp Lys Ser Lys Pro Lys Val Tyr  
115 120 125  
Gln Trp Phe Asp Leu Arg Lys Tyr Ala Ala Ala Ser Gly Gly Cys Gly  
130 135 140

Gly  
145

<210> 211  
<211> 17  
<212> PRT  
<213> Ce4mimotope

<400> 211  
Gly Glu Phe Cys Ile Asn His Arg Gly Tyr Trp Val Cys Gly Asp Pro  
1 5 10 15

Ala

<210> 212  
 <211> 27  
 <212> PRT  
 <213> Synthetic M2 Peptide

<400> 212  
 Ser Leu Leu Thr Glu Val Glu Thr Pro Ile Arg Asn Glu Trp Gly Cys  
 1 5 10 15  
 Arg Cys Asn Gly Ser Ser Asp Gly Gly Gly Cys  
 20 25

<210> 213  
 <211> 97  
 <212> PRT  
 <213> Matrix protein M2

<400> 213  
 Met Ser Leu Leu Thr Glu Val Glu Thr Pro Ile Arg Asn Glu Trp Gly  
 1 5 10 15  
 Cys Arg Cys Asn Gly Ser Ser Asp Pro Leu Ala Ile Ala Ala Asn Ile  
 20 25 30  
 Ile Gly Ile Leu His Leu Ile Leu Trp Ile Leu Asp Arg Leu Phe Phe  
 35 40 45  
 Lys Cys Ile Tyr Arg Arg Phe Lys Tyr Gly Leu Lys Gly Gly Pro Ser  
 50 55 60  
 Thr Glu Gly Val Pro Lys Ser Met Arg Glu Glu Tyr Arg Lys Glu Gln  
 65 70 75 80  
 Gln Ser Ala Val Asp Ala Asp Asp Gly His Phe Val Ser Ile Glu Leu  
 85 90 95  
 Glu

<210> 214  
 <211> 42  
 <212> DNA  
 <213> Oligonucleotide

<400> 214  
 taaccgaatt caggaggttaa aaacatatgg ctatcatcta cc

42

<210> 215  
 <211> 129  
 <212> PRT  
 <213> Bacteriophage f2

<400> 215

Ala	Ser	Asn	Phe	Thr	Gln	Phe	Val	Leu	Val	Asn	Asp	Gly	Gly	Thr	Gly
1				5					10					15	
Asn	Val	Thr	Val	Ala	Pro	Ser	Asn	Phe	Ala	Asn	Gly	Val	Ala	Glu	Trp
			20					25					30		
Ile	Ser	Ser	Asn	Ser	Arg	Ser	Gln	Ala	Tyr	Lys	Val	Thr	Cys	Ser	Val
		35					40					45			
Arg	Gln	Ser	Ser	Ala	Gln	Asn	Arg	Lys	Tyr	Thr	Ile	Lys	Val	Glu	Val
	50					55					60				
Pro	Lys	Val	Ala	Thr	Gln	Thr	Val	Gly	Gly	Val	Glu	Leu	Pro	Val	Ala
65					70					75					80
Ala	Trp	Arg	Ser	Tyr	Leu	Asn	Leu	Glu	Leu	Thr	Ile	Pro	Ile	Phe	Ala
				85					90					95	
Thr	Asn	Ser	Asp	Cys	Glu	Leu	Ile	Val	Lys	Ala	Met	Gln	Gly	Leu	Leu
			100					105					110		
Lys	Asp	Gly	Asn	Pro	Ile	Pro	Ser	Ala	Ile	Ala	Ala	Asn	Ser	Gly	Ile
		115					120					125			

Tyr

<210> 216  
 <211> 17  
 <212> PRT  
 <213> Circular Mimotope

<400> 216

Gly	Glu	Phe	Cys	Ile	Asn	His	Arg	Gly	Tyr	Trp	Val	Cys	Gly	Asp	Pro
1				5					10					15	

Ala

<210> 217  
 <211> 329  
 <212> PRT  
 <213> Bacteriophage Q-beta

<400> 217

Met	Ala	Lys	Leu	Glu	Thr	Val	Thr	Leu	Gly	Asn	Ile	Gly	Lys	Asp	Gly
1				5					10					15	
Lys	Gln	Thr	Leu	Val	Leu	Asn	Pro	Arg	Gly	Val	Asn	Pro	Thr	Asn	Gly
			20					25					30		
Val	Ala	Ser	Leu	Ser	Gln	Ala	Gly	Ala	Val	Pro	Ala	Leu	Glu	Lys	Arg
		35					40					45			
Val	Thr	Val	Ser	Val	Ser	Gln	Pro	Ser	Arg	Asn	Arg	Lys	Asn	Tyr	Lys
	50					55					60				
Val	Gln	Val	Lys	Ile	Gln	Asn	Pro	Thr	Ala	Cys	Thr	Ala	Asn	Gly	Ser

65		70		75		80									
Cys	Asp	Pro	Ser	Val	Thr	Arg	Gln	Ala	Tyr	Ala	Asp	Val	Thr	Phe	Ser
			85						90					95	
Phe	Thr	Gln	Tyr	Ser	Thr	Asp	Glu	Glu	Arg	Ala	Phe	Val	Arg	Thr	Glu
		100					105						110		
Leu	Ala	Ala	Leu	Leu	Ala	Ser	Pro	Leu	Leu	Ile	Asp	Ala	Ile	Asp	Gln
		115					120					125			
Leu	Asn	Pro	Ala	Tyr	Trp	Thr	Leu	Leu	Ile	Ala	Gly	Gly	Gly	Ser	Gly
	130					135					140				
Ser	Lys	Pro	Asp	Pro	Val	Ile	Pro	Asp	Pro	Pro	Ile	Asp	Pro	Pro	Pro
	145				150					155					160
Gly	Thr	Gly	Lys	Tyr	Thr	Cys	Pro	Phe	Ala	Ile	Trp	Ser	Leu	Glu	Glu
			165					170						175	
Val	Tyr	Glu	Pro	Pro	Thr	Lys	Asn	Arg	Pro	Trp	Pro	Ile	Tyr	Asn	Ala
		180						185					190		
Val	Glu	Leu	Gln	Pro	Arg	Glu	Phe	Asp	Val	Ala	Leu	Lys	Asp	Leu	Leu
		195					200					205			
Gly	Asn	Thr	Lys	Trp	Arg	Asp	Trp	Asp	Ser	Arg	Leu	Ser	Tyr	Thr	Thr
	210					215					220				
Phe	Arg	Gly	Cys	Arg	Gly	Asn	Gly	Tyr	Ile	Asp	Leu	Asp	Ala	Thr	Tyr
	225				230					235					240
Leu	Ala	Thr	Asp	Gln	Ala	Met	Arg	Asp	Gln	Lys	Tyr	Asp	Ile	Arg	Glu
			245						250					255	
Gly	Lys	Lys	Pro	Gly	Ala	Phe	Gly	Asn	Ile	Glu	Arg	Phe	Ile	Tyr	Leu
		260						265					270		
Lys	Ser	Ile	Asn	Ala	Tyr	Cys	Ser	Leu	Ser	Asp	Ile	Ala	Ala	Tyr	His
		275					280					285			
Ala	Asp	Gly	Val	Ile	Val	Gly	Phe	Trp	Arg	Asp	Pro	Ser	Ser	Gly	Gly
	290					295					300				
Ala	Ile	Pro	Phe	Asp	Phe	Thr	Lys	Phe	Asp	Lys	Thr	Lys	Cys	Pro	Ile
	305				310					315					320
Gln	Ala	Val	Ile	Val	Val	Pro	Arg	Ala							
				325											

<210> 218

<211> 770

<212> PRT

<213> Amyloid-Beta Protein (Homo Sapiens)

<400> 218

Met	Leu	Pro	Gly	Leu	Ala	Leu	Leu	Leu	Leu	Ala	Ala	Trp	Thr	Ala	Arg
1				5					10					15	



Ala Leu Glu Val Pro Thr Asp Gly Asn Ala Gly Leu Leu Ala Glu Pro  
20 25 30

Gln Ile Ala Met Phe Cys Gly Arg Leu Asn Met His Met Asn Val Gln  
35 40 45

Asn Gly Lys Trp Asp Ser Asp Pro Ser Gly Thr Lys Thr Cys Ile Asp  
50 55 60

Thr Lys Glu Gly Ile Leu Gln Tyr Cys Gln Glu Val Tyr Pro Glu Leu  
65 70 75 80

Gln Ile Thr Asn Val Val Glu Ala Asn Gln Pro Val Thr Ile Gln Asn  
85 90 95

Trp Cys Lys Arg Gly Arg Lys Gln Cys Lys Thr His Pro His Phe Val  
100 105 110

Ile Pro Tyr Arg Cys Leu Val Gly Glu Phe Val Ser Asp Ala Leu Leu  
115 120 125

Val Pro Asp Lys Cys Lys Phe Leu His Gln Glu Arg Met Asp Val Cys  
130 135 140

Glu Thr His Leu His Trp His Thr Val Ala Lys Glu Thr Cys Ser Glu  
145 150 155 160

Lys Ser Thr Asn Leu His Asp Tyr Gly Met Leu Leu Pro Cys Gly Ile  
165 170 175

Asp Lys Phe Arg Gly Val Glu Phe Val Cys Cys Pro Leu Ala Glu Glu  
180 185 190

Ser Asp Asn Val Asp Ser Ala Asp Ala Glu Glu Asp Asp Ser Asp Val  
195 200 205

Trp Trp Gly Gly Ala Asp Thr Asp Tyr Ala Asp Gly Ser Glu Asp Lys  
210 215 220

Val Val Glu Val Ala Glu Glu Glu Glu Val Ala Glu Val Glu Glu  
225 230 235 240

Glu Ala Asp Asp Asp Glu Asp Asp Glu Asp Gly Asp Glu Val Glu Glu  
245 250 255

Glu Ala Glu Glu Pro Tyr Glu Glu Ala Thr Glu Arg Thr Thr Ser Ile  
260 265 270

Ala Thr Thr Thr Thr Thr Thr Thr Glu Ser Val Glu Glu Val Val Arg  
275 280 285

Glu Val Cys Ser Glu Gln Ala Glu Thr Gly Pro Cys Arg Ala Met Ile  
290 295 300

Ser Arg Trp Tyr Phe Asp Val Thr Glu Gly Lys Cys Ala Pro Phe Phe  
305 310 315 320

Tyr Gly Gly Cys Gly Gly Asn Arg Asn Asn Phe Asp Thr Glu Glu Tyr  
325 330 335

Cys Met Ala Val Cys Gly Ser Ala Met Ser Gln Ser Leu Leu Lys Thr

340	345	350
Thr Gln Glu Pro Leu Ala Arg Asp	Pro Val Lys Leu Pro Thr Thr Ala	
355	360	365
Ala Ser Thr Pro Asp Ala Val Asp	Lys Tyr Leu Glu Thr Pro Gly Asp	
370	375	380
Glu Asn Glu His Ala His Phe Gln Lys	Ala Lys Glu Arg Leu Glu Ala	
385	390	395
Lys His Arg Glu Arg Met Ser Gln Val	Met Arg Glu Trp Glu Glu Ala	
	405	410
Glu Arg Gln Ala Lys Asn Leu Pro	Lys Ala Asp Lys Lys Ala Val Ile	
	420	425
Gln His Phe Gln Glu Lys Val Glu Ser	Leu Glu Gln Glu Ala Ala Asn	
	435	440
Glu Arg Gln Gln Leu Val Glu Thr His	Met Ala Arg Val Glu Ala Met	
	450	455
Leu Asn Asp Arg Arg Arg Leu Ala Leu	Glu Asn Tyr Ile Thr Ala Leu	
465	470	475
Gln Ala Val Pro Pro Arg Pro Arg His	Val Phe Asn Met Leu Lys Lys	
	485	490
Tyr Val Arg Ala Glu Gln Lys Asp Arg	Gln His Thr Leu Lys His Phe	
	500	505
Glu His Val Arg Met Val Asp Pro Lys	Lys Ala Ala Gln Ile Arg Ser	
	515	520
Gln Val Met Thr His Leu Arg Val Ile	Tyr Glu Arg Met Asn Gln Ser	
	530	535
Leu Ser Leu Leu Tyr Asn Val Pro Ala	Val Ala Glu Glu Ile Gln Asp	
545	550	555
Glu Val Asp Glu Leu Leu Gln Lys Glu	Gln Asn Tyr Ser Asp Asp Val	
	565	570
Leu Ala Asn Met Ile Ser Glu Pro Arg	Ile Ser Tyr Gly Asn Asp Ala	
	580	585
Leu Met Pro Ser Leu Thr Glu Thr Lys	Thr Thr Val Glu Leu Leu Pro	
	595	600
Val Asn Gly Glu Phe Ser Leu Asp Asp	Leu Gln Pro Trp His Ser Phe	
	610	615
Gly Ala Asp Ser Val Pro Ala Asn Thr	Glu Asn Glu Val Glu Pro Val	
625	630	635
Asp Ala Arg Pro Ala Ala Asp Arg Gly	Leu Thr Thr Arg Pro Gly Ser	
	645	650
Gly Leu Thr Asn Ile Lys Thr Glu Glu	Ile Ser Glu Val Lys Met Asp	
	660	665
		670

Ala Glu Phe Arg His Asp Ser Gly Tyr Glu Val His His Gln Lys Leu  
675 680 685

Val Phe Phe Ala Glu Asp Val Gly Ser Asn Lys Gly Ala Ile Ile Gly  
690 695 700

Leu Met Val Gly Gly Val Val Ile Ala Thr Val Ile Val Ile Thr Leu  
705 710 715 720

Val Met Leu Lys Lys Lys Gln Tyr Thr Ser Ile His His Gly Val Val  
725 730 735

Glu Val Asp Ala Ala Val Thr Pro Glu Glu Arg His Leu Ser Lys Met  
740 745 750

Gln Gln Asn Gly Tyr Glu Asn Pro Thr Tyr Lys Phe Phe Glu Gln Met  
755 760 765

Gln Asn  
770

<210> 219  
<211> 82  
<212> PRT  
<213> Beta-Amyloid Peptide Precursor (Homo Sapiens)

<400> 219

Gly Ser Gly Leu Thr Asn Ile Lys Thr Glu Glu Ile Ser Glu Val Lys  
1 5 10 15

Met Asp Ala Glu Phe Arg His Asp Ser Gly Tyr Glu Val His His Gln  
20 25 30

Lys Leu Val Phe Phe Ala Glu Asp Val Gly Ser Asn Lys Gly Ala Ile  
35 40 45

Ile Gly Leu Met Val Gly Gly Val Val Ile Ala Thr Val Ile Ile Ile  
50 55 60

Thr Leu Val Met Leu Lys Lys Gln Tyr Thr Ser Asn His His Gly Val  
65 70 75 80

Val Glu

<210> 220  
<211> 42  
<212> PRT  
<213> Amyloid Beta Peptide

<400> 220

Asp Ala Glu Phe Arg His Asp Ser Gly Tyr Glu Val His His Gln Lys  
1 5 10 15

Leu Val Phe Phe Ala Glu Asp Val Gly Ser Asn Lys Gly Ala Ile Ile  
20 25 30

Gly Leu Met Val Gly Gly Val Val Ile Ala  
35 40

<210> 221  
<211> 249  
<212> PRT  
<213> Homo sapiens

<400> 221

Tyr Phe Arg Ala Gln Met Asp Pro Asn Arg Ile Ser Glu Asp Gly Thr  
1 5 10 15

His Cys Ile Tyr Arg Ile Leu Arg Leu His Glu Asn Ala Asp Phe Gln  
20 25 30

Asp Thr Thr Leu Glu Ser Gln Asp Thr Lys Leu Ile Pro Asp Ser Cys  
35 40 45

Arg Arg Ile Lys Gln Ala Phe Gln Gly Ala Val Gln Lys Glu Leu Gln  
50 55 60

His Ile Val Gly Ser Gln His Ile Arg Ala Glu Lys Ala Met Val Asp  
65 70 75 80

Gly Ser Trp Leu Asp Leu Ala Lys Arg Ser Lys Leu Glu Ala Gln Pro  
85 90 95

Phe Ala His Leu Thr Ile Asn Ala Thr Asp Ile Pro Ser Gly Ser His  
100 105 110

Lys Val Ser Leu Ser Ser Trp Tyr His Asp Arg Gly Trp Ala Lys Ile  
115 120 125

Ser Asn Met Thr Phe Ser Asn Gly Lys Leu Ile Val Asn Gln Asp Gly  
130 135 140

Phe Tyr Tyr Leu Tyr Ala Asn Ile Cys Phe Arg His His Glu Thr Ser  
145 150 155 160

Gly Asp Leu Ala Thr Glu Tyr Leu Gln Leu Met Val Tyr Val Thr Lys  
165 170 175

Thr Ser Ile Lys Ile Pro Ser Ser His Thr Leu Met Lys Gly Gly Ser  
180 185 190

Thr Lys Tyr Trp Ser Gly Asn Ser Glu Phe His Phe Tyr Ser Ile Asn



Glu Tyr Leu Gln Leu Met Val Tyr Val Thr Lys Thr Ser Ile Lys Ile  
165 170 175

Pro Ser Ser His Thr Leu Met Lys Gly Gly Ser Thr Lys Tyr Trp Ser  
180 185 190

Gly Asn Ser Glu Phe His Phe Tyr Ser Ile Asn Val Gly Gly Phe Phe  
195 200 205

Lys Leu Arg Ser Gly Glu Glu Ile Ser Ile Glu Val Ser Asn Pro Ser  
210 215 220

Leu Leu Asp Pro Asp Gln Asp Ala Thr Tyr Phe Gly Ala Phe Lys Val  
225 230 235 240

Arg Asp Ile Asp

<210> 223  
<211> 247  
<212> PRT  
<213> Mus musculus

<400> 223

Tyr Phe Arg Ala Gln Met Asp Pro Asn Arg Ile Ser Glu Asp Ser Thr  
1 5 10 15

His Cys Phe Tyr Arg Ile Leu Arg Leu His Glu Asn Ala Gly Leu Gln  
20 25 30

Asp Ser Thr Leu Glu Ser Glu Asp Thr Leu Pro Asp Ser Cys Arg Arg  
35 40 45

Met Lys Gln Ala Phe Gln Gly Ala Val Gln Lys Glu Leu Gln His Ile  
50 55 60

Val Gly Pro Gln Arg Phe Ser Gly Ala Pro Ala Met Met Glu Gly Ser  
65 70 75 80

Trp Leu Asp Val Ala Gln Arg Gly Lys Pro Glu Ala Gln Pro Phe Ala  
85 90 95

His Leu Thr Ile Asn Ala Ala Ser Ile Pro Ser Gly Ser His Lys Val  
100 105 110

Thr Leu Ser Ser Trp Tyr His Asp Arg Gly Trp Ala Lys Ile Ser Asn

115 120 125

Met Thr Leu Ser Asn Gly Lys Leu Arg Val Asn Gln Asp Gly Phe Tyr  
130 135 140

Tyr Leu Tyr Ala Asn Ile Cys Phe Arg His His Glu Thr Ser Gly Ser  
145 150 155 160

Val Pro Thr Asp Tyr Leu Gln Leu Met Val Tyr Val Val Lys Thr Ser  
165 170 175

Ile Lys Ile Pro Ser Ser His Asn Leu Met Lys Gly Gly Ser Thr Lys  
180 185 190

Asn Trp Ser Gly Asn Ser Glu Phe His Phe Tyr Ser Ile Asn Val Gly  
195 200 205

Gly Phe Phe Lys Leu Arg Ala Gly Glu Glu Ile Ser Ile Gln Val Ser  
210 215 220

Asn Pro Ser Leu Leu Asp Pro Asp Gln Asp Ala Thr Tyr Phe Gly Ala  
225 230 235 240

Phe Lys Val Gln Asp Ile Asp  
245

<210> 224  
<211> 199  
<212> PRT  
<213> Mus musculus

<400> 224

Met Lys Gln Ala Phe Gln Gly Ala Val Gln Lys Glu Leu Gln His Ile  
1 5 10 15

Val Gly Pro Gln Arg Phe Ser Gly Ala Pro Ala Met Met Glu Gly Ser  
20 25 30

Trp Leu Asp Val Ala Gln Arg Gly Lys Pro Glu Ala Gln Pro Phe Ala  
35 40 45

His Leu Thr Ile Asn Ala Ala Ser Ile Pro Ser Gly Ser His Lys Val  
50 55 60

Thr Leu Ser Ser Trp Tyr His Asp Arg Gly Trp Ala Lys Ile Ser Asn  
65 70 75 80

Met Thr Leu Ser Asn Gly Lys Leu Arg Val Asn Gln Asp Gly Phe Tyr  
85 90 95

Tyr Leu Tyr Ala Asn Ile Cys Phe Arg His His Glu Thr Ser Gly Ser  
100 105 110

Val Pro Thr Asp Tyr Leu Gln Leu Met Val Tyr Val Val Lys Thr Ser  
115 120 125

Ile Lys Ile Pro Ser Ser His Asn Leu Met Lys Gly Gly Ser Thr Lys  
130 135 140

Asn Trp Ser Gly Asn Ser Glu Phe His Phe Tyr Ser Ile Asn Val Gly  
145 150 155 160

Gly Phe Phe Lys Leu Arg Ala Gly Glu Glu Ile Ser Ile Gln Val Ser  
165 170 175

Asn Pro Ser Leu Leu Asp Pro Asp Gln Asp Ala Thr Tyr Phe Gly Ala  
180 185 190

Phe Lys Val Gln Asp Ile Asp  
195

<210> 225  
<211> 114  
<212> PRT  
<213> Rattus sp.

<400> 225

Pro Met Phe Ile Val Asn Thr Asn Val Pro Arg Ala Ser Val Pro Glu  
1 5 10 15

Gly Phe Leu Ser Glu Leu Thr Gln Gln Leu Ala Gln Ala Thr Gly Lys  
20 25 30

Pro Ala Gln Tyr Ile Ala Val His Val Val Pro Asp Gln Leu Met Thr  
35 40 45

Phe Ser Gly Thr Ser Asp Pro Cys Ala Leu Cys Ser Leu His Ser Ile  
50 55 60

Gly Lys Ile Gly Gly Ala Gln Asn Arg Asn Tyr Ser Lys Leu Leu Cys  
65 70 75 80

Gly Leu Leu Ser Asp Arg Leu His Ile Ser Pro Asp Arg Val Tyr Ile



	85		90		95										
Asn	Tyr	Tyr	Asp	Met	Asn	Ala	Ala	Asn	Val	Gly	Trp	Asn	Gly	Ser	Thr
			100					105					110		

Phe Ala

<210> 226  
<211> 114  
<212> PRT  
<213> Mus musculus

<400> 226

Pro	Met	Phe	Ile	Val	Asn	Thr	Asn	Val	Pro	Arg	Ala	Ser	Val	Pro	Glu
1				5					10					15	

Gly	Phe	Leu	Ser	Glu	Leu	Thr	Gln	Gln	Leu	Ala	Gln	Ala	Thr	Gly	Lys
			20					25						30	

Pro	Ala	Gln	Tyr	Ile	Ala	Val	His	Val	Val	Pro	Asp	Gln	Leu	Met	Thr
		35					40					45			

Phe	Ser	Gly	Thr	Asn	Asp	Pro	Cys	Ala	Leu	Cys	Ser	Leu	His	Ser	Ile
	50					55					60				

Gly	Lys	Ile	Gly	Gly	Ala	Gln	Asn	Arg	Asn	Tyr	Ser	Lys	Leu	Leu	Cys
65					70				75						80

Gly	Leu	Leu	Ser	Asp	Arg	Leu	His	Ile	Ser	Pro	Asp	Arg	Val	Tyr	Ile
				85					90					95	

Asn	Tyr	Tyr	Asp	Met	Asn	Ala	Ala	Asn	Val	Gly	Trp	Asn	Gly	Ser	Thr
			100					105					110		

Phe Ala

<210> 227  
<211> 114  
<212> PRT  
<213> Homo sapiens

<400> 227

Pro	Met	Phe	Ile	Val	Asn	Thr	Asn	Val	Pro	Arg	Ala	Ser	Val	Pro	Asp
1				5					10					15	

Gly Phe Leu Ser Glu Leu Thr Gln Gln Leu Ala Gln Ala Thr Gly Lys  
20 25 30

Pro Pro Gln Tyr Ile Ala Val His Val Val Pro Asp Gln Leu Met Ala  
35 40 45

Phe Gly Gly Ser Ser Glu Pro Cys Ala Leu Cys Ser Leu His Ser Ile  
50 55 60

Gly Lys Ile Gly Gly Ala Gln Asn Arg Ser Tyr Ser Lys Leu Leu Cys  
65 70 75 80

Gly Leu Leu Ala Glu Arg Leu Arg Ile Ser Pro Asp Arg Val Tyr Ile  
85 90 95

Asn Tyr Tyr Asp Met Asn Ala Ala Asn Val Gly Trp Asn Asn Ser Thr  
100 105 110

Phe Ala

<210> 228  
<211> 155  
<212> PRT  
<213> Homo sapiens

<400> 228

Met Thr Pro Gly Lys Thr Ser Leu Val Ser Leu Leu Leu Leu Ser  
1 5 10 15

Leu Glu Ala Ile Val Lys Ala Gly Ile Thr Ile Pro Arg Asn Pro Gly  
20 25 30

Cys Pro Asn Ser Glu Asp Lys Asn Phe Pro Arg Thr Val Met Val Asn  
35 40 45

Leu Asn Ile His Asn Arg Asn Thr Asn Thr Asn Pro Lys Arg Ser Ser  
50 55 60

Asp Tyr Tyr Asn Arg Ser Thr Ser Pro Trp Asn Leu His Arg Asn Glu  
65 70 75 80

Asp Pro Glu Arg Tyr Pro Ser Val Ile Trp Glu Ala Lys Cys Arg His  
85 90 95

Leu Gly Cys Ile Asn Ala Asp Gly Asn Val Asp Tyr His Met Asn Ser  
100 105 110

Val Pro Ile Gln Gln Glu Ile Leu Val Leu Arg Arg Glu Pro Pro His  
115 120 125

Cys Pro Asn Ser Phe Arg Leu Glu Lys Ile Leu Val Ser Val Gly Cys  
130 135 140

Thr Cys Val Thr Pro Ile Val His His Val Ala  
145 150 155

<210> 229  
<211> 158  
<212> PRT  
<213> Mus musculus

<400> 229

Met Ser Pro Gly Arg Ala Ser Ser Val Ser Leu Met Leu Leu Leu Leu  
1 5 10 15

Leu Ser Leu Ala Ala Thr Val Lys Ala Ala Ala Ile Ile Pro Gln Ser  
20 25 30

Ser Ala Cys Pro Asn Thr Glu Ala Lys Asp Phe Leu Gln Asn Val Lys  
35 40 45

Val Asn Leu Lys Val Phe Asn Ser Leu Gly Ala Lys Val Ser Ser Arg  
50 55 60

Arg Pro Ser Asp Tyr Leu Asn Arg Ser Thr Ser Pro Trp Thr Leu His  
65 70 75 80

Arg Asn Glu Asp Pro Asp Arg Tyr Pro Ser Val Ile Trp Glu Ala Gln  
85 90 95

Cys Arg His Gln Arg Cys Val Asn Ala Glu Gly Lys Leu Asp His His  
100 105 110

Met Asn Ser Val Leu Ile Gln Gln Glu Ile Leu Val Leu Lys Arg Glu  
115 120 125

Pro Glu Ser Cys Pro Phe Thr Phe Arg Val Glu Lys Met Leu Val Gly  
130 135 140

Val Gly Cys Thr Cys Val Ala Ser Ile Val Arg Gln Ala Ala  
145 150 155

<210> 230  
<211> 132  
<212> PRT  
<213> Homo sapiens

<400> 230

Met Ala Leu Leu Leu Thr Thr Val Ile Ala Leu Thr Cys Leu Gly Gly  
1 5 10 15

Phe Ala Ser Pro Gly Pro Val Pro Pro Ser Thr Ala Leu Arg Glu Leu  
20 25 30

Ile Glu Glu Leu Val Asn Ile Thr Gln Asn Gln Lys Ala Pro Leu Cys  
35 40 45

Asn Gly Ser Met Val Trp Ser Ile Asn Leu Thr Ala Gly Met Tyr Cys  
50 55 60

Ala Ala Leu Glu Ser Leu Ile Asn Val Ser Gly Cys Ser Ala Ile Glu  
65 70 75 80

Lys Thr Gln Arg Met Leu Ser Gly Phe Cys Pro His Lys Val Ser Ala  
85 90 95

Gly Gln Phe Ser Ser Leu His Val Arg Asp Thr Lys Ile Glu Val Ala  
100 105 110

Gln Phe Val Lys Asp Leu Leu Leu His Leu Lys Lys Leu Phe Arg Glu  
115 120 125

Gly Arg Phe Asn  
130

<210> 231  
<211> 112  
<212> PRT  
<213> Homo sapiens

<400> 231

Gly Pro Val Pro Pro Ser Thr Ala Leu Arg Glu Leu Ile Glu Glu Leu  
1 5 10 15

Val Asn Ile Thr Gln Asn Gln Lys Ala Pro Leu Cys Asn Gly Ser Met  
20 25 30

Val Trp Ser Ile Asn Leu Thr Ala Gly Met Tyr Cys Ala Ala Leu Glu  
35 40 45

Ser Leu Ile Asn Val Ser Gly Cys Ser Ala Ile Glu Lys Thr Gln Arg  
50 55 60

Met Leu Ser Gly Phe Cys Pro His Lys Val Ser Ala Gly Gln Phe Ser  
65 70 75 80

Ser Leu His Val Arg Asp Thr Lys Ile Glu Val Ala Gln Phe Val Lys  
85 90 95

Asp Leu Leu Leu His Leu Lys Lys Leu Phe Arg Glu Gly Arg Phe Asn  
100 105 110

<210> 232

<211> 111

<212> PRT

<213> Mus musculus

<400> 232

Gly Pro Val Pro Arg Ser Val Ser Leu Pro Leu Thr Leu Lys Glu Leu  
1 5 10 15

Ile Glu Glu Leu Ser Asn Ile Thr Gln Asp Gln Thr Pro Leu Cys Asn  
20 25 30

Gly Ser Met Val Trp Ser Val Asp Leu Ala Ala Gly Gly Phe Cys Val  
35 40 45

Ala Leu Asp Ser Leu Thr Asn Ile Ser Asn Cys Asn Ala Ile Tyr Arg  
50 55 60

Thr Gln Arg Ile Leu His Gly Leu Cys Asn Arg Lys Ala Pro Thr Thr  
65 70 75 80

Val Ser Ser Leu Pro Asp Thr Lys Ile Glu Val Ala His Phe Ile Thr  
85 90 95

Lys Leu Leu Ser Tyr Thr Lys Gln Leu Phe Arg His Gly Pro Phe  
100 105 110

<210> 233

<211> 134

<212> PRT

<213> Homo sapiens

<400> 233

Met Arg Met Leu Leu His Leu Ser Leu Leu Ala Leu Gly Ala Ala Tyr  
1 5 10 15

Val Tyr Ala Ile Pro Thr Glu Ile Pro Thr Ser Ala Leu Val Lys Glu  
20 25 30

Thr Leu Ala Leu Leu Ser Thr His Arg Thr Leu Leu Ile Ala Asn Glu  
35 40 45

Thr Leu Arg Ile Pro Val Pro Val His Lys Asn His Gln Leu Cys Thr  
50 55 60

Glu Glu Ile Phe Gln Gly Ile Gly Thr Leu Glu Ser Gln Thr Val Gln  
65 70 75 80

Gly Gly Thr Val Glu Arg Leu Phe Lys Asn Leu Ser Leu Ile Lys Lys  
85 90 95

Tyr Ile Asp Gly Gln Lys Lys Lys Cys Gly Glu Glu Arg Arg Arg Val  
100 105 110

Asn Gln Phe Leu Asp Tyr Leu Gln Glu Phe Leu Gly Val Met Asn Thr  
115 120 125

Glu Trp Ile Ile Glu Ser  
130

<210> 234  
<211> 115  
<212> PRT  
<213> Homo sapiens

<400> 234

Ile Pro Thr Glu Ile Pro Thr Ser Ala Leu Val Lys Glu Thr Leu Ala  
1 5 10 15

Leu Leu Ser Thr His Arg Thr Leu Leu Ile Ala Asn Glu Thr Leu Arg  
20 25 30

Ile Pro Val Pro Val His Lys Asn His Gln Leu Cys Thr Glu Glu Ile  
35 40 45

Phe Gln Gly Ile Gly Thr Leu Glu Ser Gln Thr Val Gln Gly Gly Thr  
50 55 60

Val Glu Arg Leu Phe Lys Asn Leu Ser Leu Ile Lys Lys Tyr Ile Asp  
65 70 75 80

Gly Gln Lys Lys Lys Cys Gly Glu Glu Arg Arg Arg Val Asn Gln Phe  
85 90 95

Leu Asp Tyr Leu Gln Glu Phe Leu Gly Val Met Asn Thr Glu Trp Ile  
100 105 110

Ile Glu Ser  
115

<210> 235  
<211> 113  
<212> PRT  
<213> Mus musculus

<400> 235

Met Glu Ile Pro Met Ser Thr Val Val Lys Glu Thr Leu Thr Gln Leu  
1 5 10 15

Ser Ala His Arg Ala Leu Leu Thr Ser Asn Glu Thr Met Arg Leu Pro  
20 25 30

Val Pro Thr His Lys Asn His Gln Leu Cys Ile Gly Glu Ile Phe Gln  
35 40 45

Gly Leu Asp Ile Leu Lys Asn Gln Thr Val Arg Gly Gly Thr Val Glu  
50 55 60

Met Leu Phe Gln Asn Leu Ser Leu Ile Lys Lys Tyr Ile Asp Arg Gln  
65 70 75 80

Lys Glu Lys Cys Gly Glu Glu Arg Arg Arg Thr Arg Gln Phe Leu Asp  
85 90 95

Tyr Leu Gln Glu Phe Leu Gly Val Met Ser Thr Glu Trp Ala Met Glu  
100 105 110

Gly

<210> 236  
<211> 111  
<212> PRT  
<213> Homo sapiens

<400> 236

Ser Asp Gly Gly Ala Gln Asp Cys Cys Leu Lys Tyr Ser Gln Arg Lys  
1 5 10 15

Ile Pro Ala Lys Val Val Arg Ser Tyr Arg Lys Gln Glu Pro Ser Leu  
20 25 30

Gly Cys Ser Ile Pro Ala Ile Leu Phe Leu Pro Arg Lys Arg Ser Gln  
35 40 45

Ala Glu Leu Cys Ala Asp Pro Lys Glu Leu Trp Val Gln Gln Leu Met  
50 55 60

Gln His Leu Asp Lys Thr Pro Ser Pro Gln Lys Pro Ala Gln Gly Cys  
65 70 75 80

Arg Lys Asp Arg Gly Ala Ser Lys Thr Gly Lys Lys Gly Lys Gly Ser  
85 90 95

Lys Gly Cys Lys Arg Thr Glu Arg Ser Gln Thr Pro Lys Gly Pro  
100 105 110

<210> 237  
<211> 110  
<212> PRT  
<213> Mus musculus

<400> 237

Ser Asp Gly Gly Gly Gln Asp Cys Cys Leu Lys Tyr Ser Gln Lys Lys  
1 5 10 15

Ile Pro Tyr Ser Ile Val Arg Gly Tyr Arg Lys Gln Glu Pro Ser Leu  
20 25 30

Gly Cys Pro Ile Pro Ala Ile Leu Phe Ser Pro Arg Lys His Ser Lys  
35 40 45

Pro Glu Leu Cys Ala Asn Pro Glu Glu Gly Trp Val Gln Asn Leu Met  
50 55 60

Arg Arg Leu Asp Gln Pro Pro Ala Pro Gly Lys Gln Ser Pro Gly Cys  
65 70 75 80

Arg Lys Asn Arg Gly Thr Ser Lys Ser Gly Lys Lys Gly Lys Gly Ser  
85 90 95

Lys Gly Cys Lys Arg Thr Glu Gln Thr Gln Pro Ser Arg Gly  
100 105 110

<210> 238



<211> 74  
<212> PRT  
<213> Homo sapiens

<400> 238

Asp Gly Lys Pro Val Ser Leu Ser Tyr Arg Cys Pro Cys Arg Phe Phe  
1 5 10 15

Glu Ser His Val Ala Arg Ala Asn Val Lys His Leu Lys Ile Leu Asn  
20 25 30

Thr Pro Asn Cys Ala Leu Gln Ile Val Ala Arg Leu Lys Asn Asn Asn  
35 40 45

Arg Gln Val Cys Ile Asp Pro Lys Leu Lys Trp Ile Gln Glu Tyr Leu  
50 55 60

Glu Lys Ala Leu Asn Lys Arg Phe Lys Met  
65 70

<210> 239  
<211> 70  
<212> PRT  
<213> Mus musculus

<400> 239

Asp Gly Lys Pro Val Ser Leu Ser Tyr Arg Cys Pro Cys Arg Phe Phe  
1 5 10 15

Glu Ser His Ile Ala Arg Ala Asn Val Lys His Leu Lys Ile Leu Asn  
20 25 30

Thr Pro Asn Cys Ala Leu Gln Ile Val Ala Arg Leu Lys Asn Asn Asn  
35 40 45

Arg Gln Val Cys Ile Asp Pro Lys Leu Lys Trp Ile Gln Glu Tyr Leu  
50 55 60

Glu Lys Ala Leu Asn Lys  
65 70

<210> 240  
<211> 109  
<212> PRT  
<213> Homo sapiens

<400> 240

Met Lys Phe Ile Ser Thr Ser Leu Leu Leu Met Leu Leu Val Ser Ser

1 5 10 15

Leu Ser Pro Val Gln Gly Val Leu Glu Val Tyr Tyr Thr Ser Leu Arg  
20 25 30

Cys Arg Cys Val Gln Glu Ser Ser Val Phe Ile Pro Arg Arg Phe Ile  
35 40 45

Asp Arg Ile Gln Ile Leu Pro Arg Gly Asn Gly Cys Pro Arg Lys Glu  
50 55 60

Ile Ile Val Trp Lys Lys Asn Lys Ser Ile Val Cys Val Asp Pro Gln  
65 70 75 80

Ala Glu Trp Ile Gln Arg Met Met Glu Val Leu Arg Lys Arg Ser Ser  
85 90 95

Ser Thr Leu Pro Val Pro Val Phe Lys Arg Lys Ile Pro  
100 105

<210> 241  
<211> 109  
<212> PRT  
<213> Mus musculus

<400> 241

Met Arg Leu Ser Thr Ala Thr Leu Leu Leu Leu Ala Ser Cys Leu  
1 5 10 15

Ser Pro Gly His Gly Ile Leu Glu Ala His Tyr Thr Asn Leu Lys Cys  
20 25 30

Arg Cys Ser Gly Val Ile Ser Thr Val Val Gly Leu Asn Ile Ile Asp  
35 40 45

Arg Ile Gln Val Thr Pro Pro Gly Asn Gly Cys Pro Lys Thr Glu Val  
50 55 60

Val Ile Trp Thr Lys Met Lys Lys Val Ile Cys Val Asn Pro Arg Ala  
65 70 75 80

Lys Trp Leu Gln Arg Leu Leu Arg His Val Gln Ser Lys Ser Leu Ser  
85 90 95

Ser Thr Pro Gln Ala Pro Val Ser Lys Arg Arg Ala Ala  
100 105

<210> 242  
<211> 97  
<212> PRT  
<213> Homo sapiens

<400> 242

Met Lys Val Ser Ala Ala Leu Leu Trp Leu Leu Leu Ile Ala Ala Ala  
1 5 10 15

Phe Ser Pro Gln Gly Leu Ala Gly Pro Ala Ser Val Pro Thr Thr Cys  
20 25 30

Cys Phe Asn Leu Ala Asn Arg Lys Ile Pro Leu Gln Arg Leu Glu Ser  
35 40 45

Tyr Arg Arg Ile Thr Ser Gly Lys Cys Pro Gln Lys Ala Val Ile Phe  
50 55 60

Lys Thr Lys Leu Ala Lys Asp Ile Cys Ala Asp Pro Lys Lys Lys Trp  
65 70 75 80

Val Gln Asp Ser Met Lys Tyr Leu Asp Gln Lys Ser Pro Thr Pro Lys  
85 90 95

Pro

<210> 243  
<211> 119  
<212> PRT  
<213> Homo sapiens

<400> 243

Met Ala Gly Leu Met Thr Ile Val Thr Ser Leu Leu Phe Leu Gly Val  
1 5 10 15

Cys Ala His His Ile Ile Pro Thr Gly Ser Val Val Ile Pro Ser Pro  
20 25 30

Cys Cys Met Phe Phe Val Ser Lys Arg Ile Pro Glu Asn Arg Val Val  
35 40 45

Ser Tyr Gln Leu Ser Ser Arg Ser Thr Cys Leu Lys Ala Gly Val Ile  
50 55 60

Phe Thr Thr Lys Lys Gly Gln Gln Phe Cys Gly Asp Pro Lys Gln Glu  
65 70 75 80

Trp Val Gln Arg Tyr Met Lys Asn Leu Asp Ala Lys Gln Lys Lys Ala  
85 90 95

Ser Pro Arg Ala Arg Ala Val Ala Val Lys Gly Pro Val Gln Arg Tyr  
100 105 110

Pro Gly Asn Gln Thr Thr Cys  
115

<210> 244  
<211> 94  
<212> PRT  
<213> Homo sapiens

<400> 244

Met Met Gly Leu Ser Leu Ala Ser Ala Val Leu Leu Ala Ser Leu Leu  
1 5 10 15

Ser Leu His Leu Gly Thr Ala Thr Arg Gly Ser Asp Ile Ser Lys Thr  
20 25 30

Cys Cys Phe Gln Tyr Ser His Lys Pro Leu Pro Trp Thr Trp Val Arg  
35 40 45

Ser Tyr Glu Phe Thr Ser Asn Ser Cys Ser Gln Arg Ala Val Ile Phe  
50 55 60

Thr Thr Lys Arg Gly Lys Lys Val Cys Thr His Pro Arg Lys Lys Trp  
65 70 75 80

Val Gln Lys Tyr Ile Ser Leu Leu Lys Thr Pro Lys Gln Leu  
85 90

<210> 245  
<211> 97  
<212> PRT  
<213> Mus musculus

<400> 245

Met Gln Ser Ser Thr Ala Leu Leu Phe Leu Leu Leu Thr Val Thr Ser  
1 5 10 15

Phe Thr Ser Gln Val Leu Ala His Pro Gly Ser Ile Pro Thr Ser Cys  
20 25 30

Cys Phe Ile Met Thr Ser Lys Lys Ile Pro Asn Thr Leu Leu Lys Ser

35 40 45

Tyr Lys Arg Ile Thr Asn Asn Arg Cys Thr Leu Lys Ala Ile Val Phe  
50 55 60

Lys Thr Arg Leu Gly Lys Glu Ile Cys Ala Asp Pro Lys Lys Lys Trp  
65 70 75 80

Val Gln Asp Ala Thr Lys His Leu Asp Gln Lys Leu Gln Thr Pro Lys  
85 90 95

Pro

<210> 246  
<211> 119  
<212> PRT  
<213> Mus musculus

<400> 246

Met Ala Gly Ser Ala Thr Ile Val Ala Gly Leu Leu Leu Leu Val Ala  
1 5 10 15

Cys Ala Cys Cys Ile Phe Pro Ile Asp Ser Val Thr Ile Pro Ser Ser  
20 25 30

Cys Cys Thr Ser Phe Ile Ser Lys Lys Ile Pro Glu Asn Arg Val Val  
35 40 45

Ser Tyr Gln Leu Ala Asn Gly Ser Ile Cys Pro Lys Ala Gly Val Ile  
50 55 60

Phe Ile Thr Lys Lys Gly His Lys Ile Cys Thr Asp Pro Lys Leu Leu  
65 70 75 80

Trp Val Gln Arg His Ile Gln Lys Leu Asp Ala Lys Lys Asn Gln Pro  
85 90 95

Ser Lys Gly Ala Lys Ala Val Arg Thr Lys Phe Ala Val Gln Arg Arg  
100 105 110

Arg Gly Asn Ser Thr Glu Val  
115

<210> 247  
<211> 553  
<212> PRT

<213> Homo sapiens

<400> 247

Met Thr Ala Pro Gly Ala Ala Gly Arg Cys Pro Pro Thr Thr Trp Leu  
1 5 10 15

Gly Ser Leu Leu Leu Leu Val Cys Leu Leu Ala Ser Arg Ser Ile Thr  
20 25 30

Glu Glu Val Ser Glu Tyr Cys Ser His Met Ile Gly Ser Gly His Leu  
35 40 45

Gln Ser Leu Gln Arg Leu Ile Asp Ser Gln Met Glu Thr Ser Cys Gln  
50 55 60

Ile Thr Phe Glu Phe Val Asp Gln Glu Gln Leu Lys Asp Pro Val Cys  
65 70 75 80

Tyr Leu Lys Lys Ala Phe Leu Leu Val Gln Asp Ile Met Glu Asp Thr  
85 90 95

Met Arg Phe Arg Asp Asn Thr Pro Asn Ala Ile Ala Ile Val Gln Leu  
100 105 110

Gln Glu Leu Ser Leu Arg Leu Lys Ser Cys Phe Thr Lys Asp Tyr Glu  
115 120 125

Glu His Asp Lys Ala Cys Val Arg Thr Phe Tyr Glu Thr Pro Leu Gln  
130 135 140

Leu Leu Glu Lys Val Lys Asn Val Phe Asn Glu Thr Lys Asn Leu Leu  
145 150 155 160

Asp Lys Asp Trp Asn Ile Phe Ser Lys Asn Cys Asn Asn Ser Phe Ala  
165 170 175

Glu Cys Ser Ser Gln Asp Val Val Thr Lys Pro Asp Cys Asn Cys Leu  
180 185 190

Tyr Pro Lys Ala Ile Pro Ser Ser Asp Pro Ala Ser Val Ser Pro His  
195 200 205

Gln Pro Leu Ala Pro Ser Met Ala Pro Val Ala Gly Leu Thr Trp Glu  
210 215 220

Asp Ser Glu Gly Thr Glu Gly Ser Ser Leu Leu Pro Gly Glu Gln Pro

225		230		235		240
Leu His Thr Val Asp	Pro Gly Ser Ala Lys	Gln Arg Pro Pro Arg Ser				
	245		250			255
Thr Cys Gln Ser Phe	Glu Pro Pro Glu Thr	Pro Val Val Lys Asp Ser				
	260		265			270
Thr Ile Gly Gly Ser	Pro Gln Pro Arg Pro	Ser Val Gly Ala Phe Asn				
	275		280			285
Pro Gly Met Glu Asp	Ile Leu Asp Ser Ala Met	Gly Thr Asn Trp Val				
	290		295			300
Pro Glu Glu Ala Ser	Gly Glu Ala Ser Glu	Ile Pro Val Pro Gln Gly				
	305		310			315
Thr Glu Leu Ser	Pro Ser Arg Pro Gly	Gly Gly Ser Met Gln Thr Glu				
	325		330			335
Pro Ala Arg	Pro Ser Asn Phe Leu	Ser Ala Ser Ser Pro Leu Pro Ala				
	340		345			350
Ser Ala Lys Gly Gln	Gln Pro Ala Asp Val Thr	Gly Thr Ala Leu Pro				
	355		360			365
Arg Val Gly Pro Val	Arg Pro Thr Gly Gln Asp	Trp Asn His Thr Pro				
	370		375			380
Gln Lys Thr Asp His	Pro Ser Ala Leu Leu	Arg Asp Pro Pro Glu Pro				
	385		390			395
Gly Ser Pro Arg Ile	Ser Ser Pro Arg Pro	Gln Gly Leu Ser Asn Pro				
	405		410			415
Ser Thr Leu Ser Ala	Gln Pro Gln Leu Ser	Arg Ser His Ser Ser Gly				
	420		425			430
Ser Val Leu Pro Leu	Gly Glu Leu Glu Gly	Arg Arg Ser Thr Arg Asp				
	435		440			445
Arg Arg Ser Pro Ala	Glu Pro Glu Gly Gly	Pro Ala Ser Glu Gly Ala				
	450		455			460
Ala Arg Pro Leu Pro	Arg Phe Asn Ser Val	Pro Leu Thr Asp Thr His				
	465		470			475
						480

Glu Arg Gln Ser Glu Gly Ser Ser Ser Pro Gln Leu Gln Glu Ser Val  
485 490 495

Phe His Leu Leu Val Pro Ser Val Ile Leu Val Leu Leu Ala Val Gly  
500 505 510

Gly Leu Leu Phe Tyr Arg Trp Arg Arg Arg Ser His Gln Glu Pro Gln  
515 520 525

Arg Ala Asp Ser Pro Leu Glu Gln Pro Glu Gly Ser Pro Leu Thr Gln  
530 535 540

Asp Asp Arg Gln Val Glu Leu Pro Val  
545 550

<210> 248  
<211> 552  
<212> PRT  
<213> Mus musculus

<400> 248

Met Thr Ala Arg Gly Ala Ala Gly Arg Cys Pro Ser Ser Thr Trp Leu  
1 5 10 15

Gly Ser Arg Leu Leu Leu Val Cys Leu Leu Met Ser Arg Ser Ile Ala  
20 25 30

Lys Glu Val Ser Glu His Cys Ser His Met Ile Gly Asn Gly His Leu  
35 40 45

Lys Val Leu Gln Gln Leu Ile Asp Ser Gln Met Glu Thr Ser Cys Gln  
50 55 60

Ile Ala Phe Glu Phe Val Asp Gln Glu Gln Leu Asp Asp Pro Val Cys  
65 70 75 80

Tyr Leu Lys Lys Ala Phe Phe Leu Val Gln Asp Ile Ile Asp Glu Thr  
85 90 95

Met Arg Phe Lys Asp Asn Thr Pro Asn Ala Asn Ala Thr Glu Arg Leu  
100 105 110

Gln Glu Leu Ser Asn Asn Leu Asn Ser Cys Phe Thr Lys Asp Tyr Glu  
115 120 125



Glu	Gln	Asn	Lys	Ala	Cys	Val	Arg	Thr	Phe	His	Glu	Thr	Pro	Leu	Gln
130						135					140				
Leu	Leu	Glu	Lys	Ile	Lys	Asn	Phe	Phe	Asn	Glu	Thr	Lys	Asn	Leu	Leu
145					150					155					160
Glu	Lys	Asp	Trp	Asn	Ile	Phe	Thr	Lys	Asn	Cys	Asn	Asn	Ser	Phe	Ala
				165					170					175	
Lys	Cys	Ser	Ser	Arg	Asp	Val	Val	Thr	Lys	Pro	Asp	Cys	Asn	Cys	Leu
			180					185					190		
Tyr	Pro	Lys	Ala	Thr	Pro	Ser	Ser	Asp	Pro	Ala	Ser	Ala	Ser	Pro	His
	195						200					205			
Gln	Pro	Pro	Ala	Pro	Ser	Met	Ala	Pro	Leu	Ala	Gly	Leu	Ala	Trp	Asp
210						215					220				
Asp	Ser	Gln	Arg	Thr	Glu	Gly	Ser	Ser	Leu	Leu	Pro	Ser	Glu	Leu	Pro
225					230					235					240
Leu	Arg	Ile	Glu	Asp	Pro	Gly	Ser	Ala	Lys	Gln	Arg	Pro	Pro	Arg	Ser
				245					250					255	
Thr	Cys	Gln	Thr	Leu	Glu	Ser	Thr	Glu	Gln	Pro	Asn	His	Gly	Asp	Arg
		260						265					270		
Leu	Thr	Glu	Asp	Ser	Gln	Pro	His	Pro	Ser	Ala	Gly	Gly	Pro	Val	Pro
	275						280					285			
Gly	Val	Glu	Asp	Ile	Leu	Glu	Ser	Ser	Leu	Gly	Thr	Asn	Trp	Val	Leu
290						295					300				
Glu	Glu	Ala	Ser	Gly	Glu	Ala	Ser	Glu	Gly	Phe	Leu	Thr	Gln	Glu	Ala
305					310					315					320
Lys	Phe	Ser	Pro	Ser	Thr	Pro	Val	Gly	Gly	Ser	Ile	Gln	Ala	Glu	Thr
				325					330					335	
Asp	Arg	Pro	Arg	Ala	Leu	Ser	Ala	Ser	Pro	Phe	Pro	Lys	Ser	Thr	Glu
			340					345					350		
Asp	Gln	Lys	Pro	Val	Asp	Ile	Thr	Asp	Arg	Pro	Leu	Thr	Glu	Val	Asn
	355						360					365			
Pro	Met	Arg	Pro	Ile	Gly	Gln	Thr	Gln	Asn	Asn	Thr	Pro	Glu	Lys	Thr



Gln Glu Val Ala Gly Ser Leu Ile Phe Arg Ala Ile Ser Ser Ile Gly  
35 40 45

Leu Glu Cys Gln Ser Val Thr Ser Arg Gly Asp Leu Ala Thr Cys Pro  
50 55 60

Arg Gly Phe Ala Val Thr Gly Cys Thr Cys Gly Ser Ala Cys Gly Ser  
65 70 75 80

Trp Asp Val Arg Ala Glu Thr Thr Cys His Cys Gln Cys Ala Gly Met  
85 90 95

Asp Trp Thr Gly Ala Arg Cys Cys Arg Val Gln Pro  
100 105

<210> 250  
<211> 114  
<212> PRT  
<213> Mus musculus

<400> 250

Met Lys Asn Leu Ser Phe Pro Leu Leu Phe Leu Phe Phe Leu Val Pro  
1 5 10 15

Glu Leu Leu Gly Ser Ser Met Pro Leu Cys Pro Ile Asp Glu Ala Ile  
20 25 30

Asp Lys Lys Ile Lys Gln Asp Phe Asn Ser Leu Phe Pro Asn Ala Ile  
35 40 45

Lys Asn Ile Gly Leu Asn Cys Trp Thr Val Ser Ser Arg Gly Lys Leu  
50 55 60

Ala Ser Cys Pro Glu Gly Thr Ala Val Leu Ser Cys Ser Cys Gly Ser  
65 70 75 80

Ala Cys Gly Ser Trp Asp Ile Arg Glu Glu Lys Val Cys His Cys Gln  
85 90 95

Cys Ala Arg Ile Asp Trp Thr Ala Ala Arg Cys Cys Lys Leu Gln Val  
100 105 110

Ala Ser

<210> 251  
<211> 174

<212> PRT

<213> Homo sapiens

<400> 251

Gln Asp Gln Gly Gly Leu Val Thr Glu Thr Ala Asp Pro Gly Ala Gln  
1 5 10 15

Ala Gln Gln Gly Leu Gly Phe Gln Lys Leu Pro Glu Glu Glu Pro Glu  
20 25 30

Thr Asp Leu Ser Pro Gly Leu Pro Ala Ala His Leu Ile Gly Ala Pro  
35 40 45

Leu Lys Gly Gln Gly Leu Gly Trp Glu Thr Thr Lys Glu Gln Ala Phe  
50 55 60

Leu Thr Ser Gly Thr Gln Phe Ser Asp Ala Glu Gly Leu Ala Leu Pro  
65 70 75 80

Gln Asp Gly Leu Tyr Tyr Leu Tyr Cys Leu Val Gly Tyr Arg Gly Arg  
85 90 95

Ala Pro Pro Gly Gly Gly Asp Pro Gln Gly Arg Ser Val Thr Leu Arg  
100 105 110

Ser Ser Leu Tyr Arg Ala Gly Gly Ala Tyr Gly Pro Gly Thr Pro Glu  
115 120 125

Leu Leu Leu Glu Gly Ala Glu Thr Val Thr Pro Val Leu Asp Pro Ala  
130 135 140

Arg Arg Gln Gly Tyr Gly Pro Leu Trp Tyr Thr Ser Val Gly Phe Gly  
145 150 155 160

Gly Leu Val Gln Leu Arg Arg Gly Glu Arg Val Tyr Val Asn  
165 170

<210> 252

<211> 258

<212> PRT

<213> Mus musculus

<400> 252

Gln Asp Gln Gly Arg Arg Val Glu Lys Ile Ile Gly Ser Gly Ala Gln  
1 5 10 15

Ala Gln Lys Arg Leu Asp Asp Ser Lys Pro Ser Cys Ile Leu Pro Ser

20				25				30							
Pro	Ser	Ser	Leu	Ser	Glu	Thr	Pro	Asp	Pro	Arg	Leu	His	Pro	Gln	Arg
		35					40					45			
Ser	Asn	Ala	Ser	Arg	Asn	Leu	Ala	Ser	Thr	Ser	Gln	Gly	Pro	Val	Ala
	50					55					60				
Gln	Ser	Ser	Arg	Glu	Ala	Ser	Ala	Trp	Met	Thr	Ile	Leu	Ser	Pro	Ala
65					70					75					80
Ala	Asp	Ser	Thr	Pro	Asp	Pro	Gly	Val	Gln	Gln	Leu	Pro	Lys	Gly	Glu
				85					90					95	
Pro	Glu	Thr	Asp	Leu	Asn	Pro	Glu	Leu	Pro	Ala	Ala	His	Leu	Ile	Gly
			100					105					110		
Ala	Trp	Met	Ser	Gly	Gln	Gly	Leu	Ser	Trp	Glu	Ala	Ser	Gln	Glu	Glu
		115					120					125			
Ala	Phe	Leu	Arg	Ser	Gly	Ala	Gln	Phe	Ser	Pro	Thr	His	Gly	Leu	Ala
	130					135					140				
Leu	Pro	Gln	Asp	Gly	Val	Tyr	Tyr	Leu	Tyr	Cys	His	Val	Gly	Tyr	Arg
145					150					155					160
Gly	Arg	Thr	Pro	Pro	Ala	Gly	Arg	Ser	Arg	Ala	Arg	Ser	Leu	Thr	Leu
				165					170					175	
Arg	Ser	Ala	Leu	Tyr	Arg	Ala	Gly	Gly	Ala	Tyr	Gly	Arg	Gly	Ser	Pro
			180					185					190		
Glu	Leu	Leu	Leu	Glu	Gly	Ala	Glu	Thr	Val	Thr	Pro	Val	Val	Asp	Pro
		195					200					205			
Ile	Gly	Tyr	Gly	Ser	Leu	Trp	Tyr	Thr	Ser	Val	Gly	Phe	Gly	Gly	Leu
	210					215					220				
Ala	Gln	Leu	Arg	Ser	Gly	Glu	Arg	Val	Tyr	Val	Asn	Ile	Ser	His	Pro
225					230					235					240
Asp	Met	Val	Asp	Tyr	Arg	Arg	Gly	Lys	Thr	Phe	Phe	Gly	Ala	Val	Met
				245					250					255	
Val	Gly														

Val Gly

<210> 253  
<211> 128  
<212> PRT  
<213> RNA-phage PP7

<400> 253

Met Ser Lys Thr Ile Val Leu Ser Val Gly Glu Ala Thr Arg Thr Leu  
1 5 10 15

Thr Glu Ile Gln Ser Thr Ala Asp Arg Gln Ile Phe Glu Glu Lys Val  
20 25 30

Gly Pro Leu Val Gly Arg Leu Arg Leu Thr Ala Ser Leu Arg Gln Asn  
35 40 45

Gly Ala Lys Thr Ala Tyr Arg Val Asn Leu Lys Leu Asp Gln Ala Asp  
50 55 60

Val Val Asp Cys Ser Thr Ser Val Cys Gly Glu Leu Pro Lys Val Arg  
65 70 75 80

Tyr Thr Gln Val Trp Ser His Asp Val Thr Ile Val Ala Asn Ser Thr  
85 90 95

Glu Ala Ser Arg Lys Ser Leu Tyr Asp Leu Thr Lys Ser Leu Val Ala  
100 105 110

Thr Ser Gln Val Glu Asp Leu Val Val Asn Leu Val Pro Leu Gly Arg  
115 120 125

<210> 254  
<211> 330  
<212> PRT  
<213> RNA-phage SP A1 protein

<400> 254

Ala Lys Leu Asn Gln Val Thr Leu Ser Lys Ile Gly Lys Asn Gly Asp  
1 5 10 15

Gln Thr Leu Thr Leu Thr Pro Arg Gly Val Asn Pro Thr Asn Gly Val  
20 25 30

Ala Ser Leu Ser Glu Ala Gly Ala Val Pro Ala Leu Glu Lys Arg Val  
35 40 45

Thr Val Ser Val Ala Gln Pro Ser Arg Asn Arg Lys Asn Phe Lys Val

50	55	60
Gln Ile Lys Leu Gln Asn Pro Thr Ala Cys Thr Arg Asp Ala Cys Asp		
65	70	75 80
Pro Ser Val Thr Arg Ser Ala Phe Ala Asp Val Thr Leu Ser Phe Thr		
	85	90 95
Ser Tyr Ser Thr Asp Glu Glu Arg Ala Leu Ile Arg Thr Glu Leu Ala		
	100	105 110
Ala Leu Leu Ala Asp Pro Leu Ile Val Asp Ala Ile Asp Asn Leu Asn		
	115	120 125
Pro Ala Tyr Trp Ala Ala Leu Leu Val Ala Ser Ser Gly Gly Gly Asp		
	130	135 140
Asn Pro Ser Asp Pro Asp Val Pro Val Val Pro Asp Val Lys Pro Pro		
145	150	155 160
Asp Gly Thr Gly Arg Tyr Lys Cys Pro Phe Ala Cys Tyr Arg Leu Gly		
	165	170 175
Ser Ile Tyr Glu Val Gly Lys Glu Gly Ser Pro Asp Ile Tyr Glu Arg		
	180	185 190
Gly Asp Glu Val Ser Val Thr Phe Asp Tyr Ala Leu Glu Asp Phe Leu		
	195	200 205
Gly Asn Thr Asn Trp Arg Asn Trp Asp Gln Arg Leu Ser Asp Tyr Asp		
	210	215 220
Ile Ala Asn Arg Arg Arg Cys Arg Gly Asn Gly Tyr Ile Asp Leu Asp		
225	230	235 240
Ala Thr Ala Met Gln Ser Asp Asp Phe Val Leu Ser Gly Arg Tyr Gly		
	245	250 255
Val Arg Lys Val Lys Phe Pro Gly Ala Phe Gly Ser Ile Lys Tyr Leu		
	260	265 270
Leu Asn Ile Gln Gly Asp Ala Trp Leu Asp Leu Ser Glu Val Thr Ala		
	275	280 285
Tyr Arg Ser Tyr Gly Met Val Ile Gly Phe Trp Thr Asp Ser Lys Ser		
	290	295 300

Pro Gln Leu Pro Thr Asp Phe Thr Gln Phe Asn Ser Ala Asn Cys Pro  
305 310 315 320

Val Gln Thr Val Ile Ile Ile Pro Ser Leu  
325 330

<210> 255  
<211> 132  
<212> PRT  
<213> QB 240

<400> 255

Ala Lys Leu Glu Thr Val Thr Leu Gly Asn Ile Gly Arg Asp Gly Lys  
1 5 10 15

Gln Thr Leu Val Leu Asn Pro Arg Gly Val Asn Pro Thr Asn Gly Val  
20 25 30

Ala Ser Leu Ser Gln Ala Gly Ala Val Pro Ala Leu Glu Lys Arg Val  
35 40 45

Thr Val Ser Val Ser Gln Pro Ser Arg Asn Arg Lys Asn Tyr Lys Val  
50 55 60

Gln Val Lys Ile Gln Asn Pro Thr Ala Cys Thr Ala Asn Gly Ser Cys  
65 70 75 80

Asp Pro Ser Val Thr Arg Gln Lys Tyr Ala Asp Val Thr Phe Ser Phe  
85 90 95

Thr Gln Tyr Ser Thr Asp Glu Glu Arg Ala Phe Val Arg Thr Glu Leu  
100 105 110

Ala Ala Leu Leu Ala Ser Pro Leu Leu Ile Asp Ala Ile Asp Gln Leu  
115 120 125

Asn Pro Ala Tyr  
130

<210> 256  
<211> 132  
<212> PRT  
<213> Qb 243

<400> 256

Ala Lys Leu Glu Thr Val Thr Leu Gly Lys Ile Gly Lys Asp Gly Lys



1 5 10 15

Gln Thr Leu Val Leu Asn Pro Arg Gly Val Asn Pro Thr Asn Gly Val  
20 25 30

Ala Ser Leu Ser Gln Ala Gly Ala Val Pro Ala Leu Glu Lys Arg Val  
35 40 45

Thr Val Ser Val Ser Gln Pro Ser Arg Asn Arg Lys Asn Tyr Lys Val  
50 55 60

Gln Val Lys Ile Gln Asn Pro Thr Ala Cys Thr Ala Asn Gly Ser Cys  
65 70 75 80

Asp Pro Ser Val Thr Arg Gln Lys Tyr Ala Asp Val Thr Phe Ser Phe  
85 90 95

Thr Gln Tyr Ser Thr Asp Glu Glu Arg Ala Phe Val Arg Thr Glu Leu  
100 105 110

Ala Ala Leu Leu Ala Ser Pro Leu Leu Ile Asp Ala Ile Asp Gln Leu  
115 120 125

Asn Pro Ala Tyr  
130

<210> 257  
<211> 132  
<212> PRT  
<213> Qb 250

<400> 257

Ala Arg Leu Glu Thr Val Thr Leu Gly Asn Ile Gly Arg Asp Gly Lys  
1 5 10 15

Gln Thr Leu Val Leu Asn Pro Arg Gly Val Asn Pro Thr Asn Gly Val  
20 25 30

Ala Ser Leu Ser Gln Ala Gly Ala Val Pro Ala Leu Glu Lys Arg Val  
35 40 45

Thr Val Ser Val Ser Gln Pro Ser Arg Asn Arg Lys Asn Tyr Lys Val  
50 55 60

Gln Val Lys Ile Gln Asn Pro Thr Ala Cys Thr Ala Asn Gly Ser Cys  
65 70 75 80

Asp Pro Ser Val Thr Arg Gln Lys Tyr Ala Asp Val Thr Phe Ser Phe  
85 90 95

Thr Gln Tyr Ser Thr Asp Glu Glu Arg Ala Phe Val Arg Thr Glu Leu  
100 105 110

Ala Ala Leu Leu Ala Ser Pro Leu Leu Ile Asp Ala Ile Asp Gln Leu  
115 120 125

Asn Pro Ala Tyr  
130

<210> 258  
<211> 132  
<212> PRT  
<213> Qb 259

<400> 258

Ala Arg Leu Glu Thr Val Thr Leu Gly Asn Ile Gly Lys Asp Gly Arg  
1 5 10 15

Gln Thr Leu Val Leu Asn Pro Arg Gly Val Asn Pro Thr Asn Gly Val  
20 25 30

Ala Ser Leu Ser Gln Ala Gly Ala Val Pro Ala Leu Glu Lys Arg Val  
35 40 45

Thr Val Ser Val Ser Gln Pro Ser Arg Asn Arg Lys Asn Tyr Lys Val  
50 55 60

Gln Val Lys Ile Gln Asn Pro Thr Ala Cys Thr Ala Asn Gly Ser Cys  
65 70 75 80

Asp Pro Ser Val Thr Arg Gln Lys Tyr Ala Asp Val Thr Phe Ser Phe  
85 90 95

Thr Gln Tyr Ser Thr Asp Glu Glu Arg Ala Phe Val Arg Thr Glu Leu  
100 105 110

Ala Ala Leu Leu Ala Ser Pro Leu Leu Ile Asp Ala Ile Asp Gln Leu  
115 120 125

Asn Pro Ala Tyr  
130

<210> 259

<211> 132  
<212> PRT  
<213> Qb 251

<400> 259

Ala Lys Leu Glu Thr Val Thr Leu Gly Asn Ile Gly Lys Asp Gly Arg  
1 5 10 15

Gln Thr Leu Val Leu Asn Pro Arg Gly Val Asn Pro Thr Asn Gly Val  
20 25 30

Ala Ser Leu Ser Gln Ala Gly Ala Val Pro Ala Leu Glu Lys Arg Val  
35 40 45

Thr Val Ser Val Ser Gln Pro Ser Arg Asn Arg Lys Asn Tyr Lys Val  
50 55 60

Gln Val Lys Ile Gln Asn Pro Thr Ala Cys Thr Ala Asn Gly Ser Cys  
65 70 75 80

Asp Pro Ser Val Thr Arg Gln Lys Tyr Ala Asp Val Thr Phe Ser Phe  
85 90 95

Thr Gln Tyr Ser Thr Asp Glu Glu Arg Ala Phe Val Arg Thr Glu Leu  
100 105 110

Ala Ala Leu Leu Ala Ser Pro Leu Leu Ile Asp Ala Ile Asp Gln Leu  
115 120 125

Asn Pro Ala Tyr  
130

<210> 260  
<211> 20  
<212> DNA  
<213> PH19

<400> 260

taagtcctct gccacgtacc

20

<210> 261  
<211> 20  
<212> DNA  
<213> PH20

<400> 261

tggaaaccac gctcacttcc

20

<210> 262

<211> 30  
<212> DNA  
<213> PH21

<400> 262  
cgggatccgg gatgaagaac ctttcatttc 30

<210> 263  
<211> 31  
<212> DNA  
<213> PH22

<400> 263  
gcctctagag aggaagcgac ctgcagctta c 31

<210> 264  
<211> 46  
<212> DNA  
<213> PH29

<400> 264  
ctagcgggag ggggtggatg tggggacgac tacaaggatg acgaca 46

<210> 265  
<211> 46  
<212> DNA  
<213> PH30

<400> 265  
agcttgctgt catccttgta gtcgtcccca catccacccc ctcccc 46

<210> 266  
<211> 45  
<212> DNA  
<213> PH31

<400> 266  
agcttactca cacatgcccc ccgtgcccag cacctgaagc cgagg 45

<210> 267  
<211> 38  
<212> DNA  
<213> PH32

<400> 267  
cggcttcagg tgctgggcac ggtgggcatg tgtgagta 38

<210> 268  
<211> 37  
<212> DNA  
<213> PH35

<400> 268  
ctagcgggag ggggtggatg tgggatcgaa ggtcgca 37

<210> 269  
<211> 37  
<212> DNA  
<213> PH36

<400> 269  
agcttgcgac cttcgatccc acatccaccc cctcccg 37

<210> 270  
<211> 43  
<212> DNA  
<213> PH37

<400> 270  
cgggatccag cagctgggct cgaggtgcta gctttgttta aac 43

<210> 271  
<211> 55  
<212> DNA  
<213> PH38

<400> 271  
gatcgtttaa acaaacaaag ctagcacctc gagcccagct gctggatccc ggtac 55

<210> 272  
<211> 37  
<212> DNA  
<213> PH39

<400> 272  
ctagcgggag ggggtggatg tggggacgat gacgaca 37

<210> 273  
<211> 37  
<212> DNA  
<213> PH40

<400> 273  
agcttgctgt catcgtcccc acatccaccc cctcccg 37

<210> 274  
<211> 30  
<212> DNA  
<213> PH41

<400> 274  
catggagaca gacacactcc tgctatgggt 30

<210> 275  
<211> 39  
<212> DNA  
<213> PH42

<400> 275

gcagtaccca tagcaggagt gtgtctgtct ccatggtag 39

<210> 276  
<211> 37  
<212> DNA  
<213> PH43

<400> 276 37  
actgctgctc tgggttccag gttccactgg tgacgcg

<210> 277  
<211> 36  
<212> DNA  
<213> PH44

<400> 277 36  
gatccgcgtc accagtggaa cctggaaccc agagca

<210> 278  
<211> 40  
<212> DNA  
<213> SU7

<400> 278 40  
agcttgccgga tccaggatat cggctcgagg ttctagagtg

<210> 279  
<211> 40  
<212> DNA  
<213> SU8

<400> 279 40  
ggcccactct agaacctcga gccgatatcc tggatccgca

<210> 280  
<211> 107  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Resistin-C-Xa construct

<400> 280

Ser Ser Met Pro Leu Cys Pro Ile Asp Glu Ala Ile Asp Lys Lys Ile  
1 5 10 15

Lys Gln Asp Phe Asn Ser Leu Phe Pro Asn Ala Ile Lys Asn Ile Gly  
20 25 30

Leu Asn Cys Trp Thr Val Ser Ser Arg Gly Lys Leu Ala Ser Cys Pro  
35 40 45

Glu Gly Thr Ala Val Leu Ser Cys Ser Cys Gly Ser Ala Cys Gly Ser  
50 55 60

Trp Asp Ile Arg Glu Glu Lys Val Cys His Cys Gln Cys Ala Arg Ile  
65 70 75 80

Asp Trp Thr Ala Ala Arg Cys Cys Lys Leu Gln Val Ala Ser Ser Leu  
85 90 95

Ala Gly Gly Gly Gly Cys Gly Ile Glu Gly Arg  
100 105

<210> 281

<211> 107

<212> PRT

<213> Artificial Sequence

<220>

<223> Resistin-C-EK construct

<400> 281

Ser Ser Met Pro Leu Cys Pro Ile Asp Glu Ala Ile Asp Lys Lys Ile  
1 5 10 15

Lys Gln Asp Phe Asn Ser Leu Phe Pro Asn Ala Ile Lys Asn Ile Gly  
20 25 30

Leu Asn Cys Trp Thr Val Ser Ser Arg Gly Lys Leu Ala Ser Cys Pro  
35 40 45

Glu Gly Thr Ala Val Leu Ser Cys Ser Cys Gly Ser Ala Cys Gly Ser  
50 55 60

Trp Asp Ile Arg Glu Glu Lys Val Cys His Cys Gln Cys Ala Arg Ile  
65 70 75 80

Asp Trp Thr Ala Ala Arg Cys Cys Lys Leu Gln Val Ala Ser Ser Leu  
85 90 95

Ala Gly Gly Gly Gly Cys Gly Asp Asp Asp Asp  
100 105

<210> 282

<211> 103

<212> PRT

<213> Artificial Sequence

<220>

<223> Resistin-GCG construct

<400> 282

Ser Ser Met Pro Leu Cys Pro Ile Asp Glu Ala Ile Asp Lys Lys Ile  
1 5 10 15

Lys Gln Asp Phe Asn Ser Leu Phe Pro Asn Ala Ile Lys Asn Ile Gly  
20 25 30

Leu Asn Cys Trp Thr Val Ser Ser Arg Gly Lys Leu Ala Ser Cys Pro  
35 40 45

Glu Gly Thr Ala Val Leu Ser Cys Ser Cys Gly Ser Ala Cys Gly Ser  
50 55 60

Trp Asp Ile Arg Glu Glu Lys Val Cys His Cys Gln Cys Ala Arg Ile  
65 70 75 80

Asp Trp Thr Ala Ala Arg Cys Cys Lys Leu Gln Val Ala Ser Ser Leu  
85 90 95

Ala Gly Gly Gly Gly Cys Gly  
100

<210> 283

<211> 10285

<212> DNA

<213> Artificial Sequence

<220>

<223> pCep Xa Fc construct

<220>

<221> misc\_feature

<222> (9872)..(9872)

<223> n is a, c, g, or t

<400> 283

gccccgccgc cggacgaact aaacctgact acggcatctc tgccccttct tcgctggtac 60  
gaggagcgct tttgttttgt attcggggca gtgcatgtaa tcccttcagt tggttggtac 120  
aacttgccaa ctggggccctg ttccacatgt gacacggggg gggaccaaac acaaaggggt 180  
tctctgactg tagttgacat ccttataaat ggatgtgcac atttgccaac actgagtggc 240  
tttcatcctg gagcagactt tgcattgctgt ggactgcaac acaacattgc ctttatgtgt 300  
aactcttggc tgaagctctt acaccaatgc tgggggacat gtacctcca ggggcccagg 360  
aagactacgg gaggctacac caacgtcaat cagagggggc tgtgtagcta ccgataagcg 420  
gaccctcaag agggcattag caatagtgtt tataaggccc ccttggttaac cctaaacggg 480



tagcatatgc ttccccgggta gtagtatata ctatccagac taaccctaatt tcaatagcat	540
atgttaccca acgggaagca tatgctatcg aattaggggtt agtaaaaggg tcctaaggaa	600
cagcgatatc tcccacccca tgagctgtca cggtttttatt tacatgggggt caggattcca	660
cgagggtagt gaaccatttt agtcacaagg gcagtggtcg aagatcaagg agcgggcagt	720
gaactctcct gaatcttcgc ctgcttcttc attctccttc gtttagctaa tagaataact	780
gctgagttgt gaacagtaag gtgtatgtga ggtgctcgaa aacaagggtt caggtgacgc	840
ccccagaata aaatttgac ggggggttca gtggtggcat tgtgctatga caccaatata	900
accctcacia accccttggg caataaatat tagtgtagga atgaaacatt ctgaatatct	960
ttaacaatag aaatccatgg ggtggggaca agcogtaaag actggatgtc catctcacac	1020
gaatttatgg ctatgggcaa cacataatcc tagtgcaata tgatactggg gttattaaga	1080
tgtgtcccag gcagggacca agacaggtga accatgttgt tacactctat ttgtaacaag	1140
gggaaagaga gtggacgccg acagcagcgg actccactgg ttgtctctaa ccccccgaa	1200
aattaaacgg ggctccacgc caatggggcc cataaacaaa gacaagtggc cactcttttt	1260
tttgaaattg tggagtgggg gcacgcgtca gccccacac gccgccctgc ggttttggac	1320
tgtaaaataa ggggtgtaata acttggctga ttgtaacccc gctaaccact gcggtcaaac	1380
cacttgccca caaaaccact aatggcaccc cggggaatac ctgcataagt aggtgggcgg	1440
gccaagatag gggcgcgatt gctgcgatct ggaggacaaa ttacacacac ttgcgcctga	1500
gcgccaagca cagggttgtt ggtcctcata ttcacgaggt cgctgagagc acggtgggct	1560
aatgttgcca tgggtagcat atactacca aatatctgga tagcatatgc taccctaatt	1620
tatatctggg tagcataggc taccctaatt tatatctggg tagcatatgc taccctaatt	1680
tatatctggg tagtatatgc taccctaatt tatatctggg tagcataggc taccctaatt	1740
tatatctggg tagcatatgc taccctaatt tatatctggg tagtatatgc taccctaatt	1800
tgtatccggg tagcatatgc taccctaatt gagattaggg tagtatatgc taccctaatt	1860
tatatctggg tagcatatgc taccctaatt tctggatagc atatgctatc ctaatctata	1920
tctgggtagc atatgctatc ctaatctata tctgggtagc ataggctatc ctaatctata	1980
tctgggtagc atatgctatc ctaatctata tctgggtagt atatgctatc ctaatttata	2040
tctgggtagc ataggctatc ctaatctata tctgggtagc atatgctatc ctaatctata	2100
tctgggtagt atatgctatc ctaatctata tccgggtagc atatgctatc ctcatgcata	2160
tacagtcagc atatgatacc cagtagtaga gtgggagtgc taccctttgc atatgccgcc	2220
acctcccaag ggggcgtgaa ttttcgctgc ttgtcctttt cctgcatgct ggttgctccc	2280

attcttaggt gaatttaagg aggccaggct aaagccgtcg catgtctgat tgctcaccag 2340  
gtaaatgtcg ctaatgtttt ccaacgcgag aaggtgttga gcgcggagct gagtgacgtg 2400  
acaacatggg tatgccaat tgcccatgt tgggaggacg aaaatgggtga caagacagat 2460  
ggccagaaat acaccaacag cacgcatgat gtctactggg gatttattct ttagtgcggg 2520  
ggaatacacg gcttttaata cgattgaggg cgtctcctaa caagttacat cactcctgcc 2580  
cttctcacc ctcctctcca tcacctcctt catctccgtc atctccgtca tcacctccg 2640  
cggcagcccc ttccaccata ggtggaaacc agggaggcaa atctactcca tcgtcaaagc 2700  
tgcacacagt cacctgata ttgcaggtag gagcgggctt tgtcataaca aggtccttaa 2760  
tcgcctcctt caaaacctca gcaaatatat gagtttgtaa aaagaccatg aaataacaga 2820  
caatggactc ccttagcggg ccaggttgtg ggccgggtcc aggggccatt ccaaagggga 2880  
gacgactcaa tgggtgaaga cgacattgtg gaatagcaag ggcagttcct cgccttaggt 2940  
tgtaaaggga ggtcttacta cctccatata cgaacacacc ggcgacccaa gttccttctg 3000  
cggtagtcct ttctacgtga ctctagcca ggagagctct taaaccttct gcaatgttct 3060  
caaatttcgg gttggaacct ccttgaccac gatgctttcc aaaccacct ccttttttgc 3120  
gcctgcctcc atcacctga cccgggggtc cagtgttgg gccttctct gggctcatctg 3180  
cggggccctg ctctatcgt cccgggggca cgtcaggctc accatctggg ccaccttctt 3240  
ggtggtattc aaaataatcg gcttcccta cagggtggaa aaatggcctt ctacctggag 3300  
ggggcctgcg cgggtggagac ccgatgatg atgactgact actgggactc ctgggcctct 3360  
tttctccacg tccacgacct ctccccctgg ctctttcacg acttcccccc ctggctcttt 3420  
cacgtctctt acccggcg cctccactac ctctcgacc ccggcctcca ctacctctc 3480  
gacccgggc tccactgct cctcgacccc ggctccacc tctgtctct gccctcctg 3540  
ctctgcccc tctctgtgt cctgcccctc ctgcccctcc tgctcctgcc cctctgccc 3600  
ctctgtctcc tgcccctct gccctcctg ctctgcccc tctgcccct cctctgtctc 3660  
ctgcccctcc tgcccctct cctgtctctg cccctcctgc cctcctgtct cctgcccctc 3720  
ctgcccctcc tgctcctgcc cctcctgccc ctctgtctcc tgcccctct gctctgccc 3780  
ctctgtctcc tgcccctct gctcctgccc ctctgcccc tctgcccct cctctgtctc 3840  
ctgcccctcc tgctcctgcc cctcctgccc ctctgcccc tctgtctct gccctcctc 3900  
ctgtctctgc cctcctgccc cctcctgccc ctctcctgc tctgcccct cctgcccctc 3960  
ctctgtctcc tgcccctct cctgtctctg cccctcctgc cctcctgccc cctcctcctg 4020  
ctctgcccc tctgcccct cctcctgtct ctgcccctcc tctgtctct gccctcctg 4080  
ccctcctgc cctcctctct gctcctgccc ctctcctgc tctgcccct cctgcccctc 4140

ctgccccctcc	tgccccctcct	cctgctcctg	ccccctcctcc	tgctcctgcc	cctcctgctc	4200
ctgccccctcc	cgctcctgct	cctgctcctg	ttccaccgtg	ggtccctttg	cagccaatgc	4260
aacttggaacg	tttttgggggt	ctccggacac	catctctatg	tcttggccct	gacctgagc	4320
cgcccggggc	tcctgggtctt	cgccctcctc	gtcctcgctc	tcttccccgt	cctcgctccat	4380
ggttatcacc	ccctcttctt	tgagggtccac	tgccgcccga	gccttctggg	ccagatgtgt	4440
ctcccttctc	tcctaggcca	tttccaggtc	ctgtacctgg	cccctcgctc	gacatgattc	4500
acactaaaag	agatcaatag	acatctttat	tagacgacgc	tcagtgaata	cagggagtgc	4560
agactcctgc	ccccccaac	agcccccca	ccctcatccc	cttcatgggc	gctgtcagac	4620
agatccaggt	ctgaaaattc	cccatcctcc	gaaccatcct	cgctctcatc	accaattact	4680
cgcagcccg	aaaactccc	ctgaacatcc	tcaagatttg	cgctctgagc	ctcaagccag	4740
gcctcaaatt	cctcgctccc	ctttttgctg	gacggtaggg	atggggattc	tcgggacccc	4800
tcctcttctc	cttcaaggtc	accagacaga	gatgctactg	gggcaacgga	agaaaagctg	4860
ggtgcgccct	gtgaggatca	gcttatcgat	gataagctgt	caaacatgag	aattcttgaa	4920
gacgaaaggg	cctcgtgata	cgcctatttt	tatagggttaa	tgtcatgata	ataatgggtt	4980
cttagacgtc	aggtggcact	tttcggggaa	atgtgcgcgg	aaccctatt	tgtttatttt	5040
tctaaataca	ttcaaatatg	tatccgctca	tgagacaata	accctgataa	atgcttcaat	5100
aatattgaaa	aaggaagagt	atgagtatcc	aacatttccg	tgctgccctt	attccctttt	5160
ttgcggcatt	ttgccttctc	gtttttgctc	accagaaaac	gctggtgaaa	gtaaaagatg	5220
ctgaagatca	gttgggtgca	cgagtgggtt	acatcgaaact	ggatctcaac	agcggtaaga	5280
tccttgagag	ttttcgcccc	gaagaacgtt	ttccaatgat	gagcactttt	aaagttctgc	5340
tatgtggcgc	ggtattatcc	cgtgttgacg	ccgggcaaga	gcaactcggg	cgccgcatac	5400
actattctca	gaatgacttg	gttgagtact	caccagtcac	agaaaagcat	cttacggatg	5460
gcatgacagt	aagagaatta	tgcaagtctg	ccataaccat	gagtgataac	actgcgccca	5520
acttacttct	gacaacgata	ggaggaccga	aggagctaac	cgcttttttg	cacaacatgg	5580
gggatcatgt	aactcgctt	gacgttggtg	aaccggagct	gaatgaagcc	ataccaaacg	5640
acgagcgtga	caccacgatg	cctgcagcaa	tggcaacaac	gttgcgcaaa	ctattaactg	5700
gcgaactact	tactctagct	ccccggcaac	aattaataga	ctggatggag	gcggataaag	5760
ttgcaggacc	acttctgcgc	tcggcccttc	cggctggctg	gtttattgct	gataaatctg	5820
gagccggtga	gcgtgggtct	cgcggtatca	ttgcagcact	ggggccagat	ggtaagccct	5880
cccgatatcg	agttatctac	acgacgggga	gtcaggcaac	tatggatgaa	cgaaatagac	5940

agatcgctga gataggtgcc tcaactgatta agcattggta actgtcagac caagtttact	6000
catatatact ttagattgat ttaaaacttc atttttaatt taaaaggatc taggtgaaga	6060
tcctttttga taatctcatg accaaaatcc cttaacgtga gttttcgttc cactgagcgt	6120
cagaccccggt agaaaagatc aaaggatctt cttgagatcc tttttttctg cgcgtaatct	6180
gctgcttgca aacaaaaaaa ccaccgctac cagcgggtgggt ttgtttgccg gatcaagagc	6240
taccaactct ttttccgaag gtaactgggt tcagcagagc gcagatacca aatactgtcc	6300
ttctagtgtg gccgtagtta ggccaccact tcaagaactc tgtagcaccg cctacatacc	6360
tcgctctgct aatcctgtta ccagtggctg ctgccagtgg cgataagtcg tgtcttaccg	6420
ggttggactc aagacgatag ttaccggata aggcgcagcg gtcgggctga acgggggggtt	6480
cgtgcacaca gccagccttg gagcgaacga cctacaccga actgagatac ctacagcgtg	6540
agctatgaga aagcgccacg cttcccgaag ggagaaaggc ggacaggatc ccggttaagc	6600
gcagggtcgg aacaggagag cgcacgaggg agcttccagg gggaaacgcc tggatatcttt	6660
atagtctctgt cgggtttcgc cacctctgac ttgagcgtcg atttttgtga tgctcgtcag	6720
gggggaggag cctatggaaa aacgccagca acgcggcctt tttacggttc ctggcctttt	6780
gctgcgccgc gtgcggctgc tggagatggc ggacgcgatg gatatgttct gccaaagggtt	6840
ggtttgcgca ttcacagttc tccgcaagaa ttgattggct ccaattcttg gagtgggtgaa	6900
tccgttagcg aggccatcca gcctcgcgtc gaactagatg atccgctgtg gaatgtgtgt	6960
cagttagggt gtggaaagtc cccaggctcc ccagcaggca gaagtatgca aagcatgcat	7020
ctcaattagt cagcaaccag gtgtggaaag tcccaggct cccagcagg cagaagtatg	7080
caaagcatgc atctcaatta gtcagcaacc atagtccgc ccctaactcc gcccatcccg	7140
cccctaactc cgccagttc cgccattct ccgccccatg gctgactaat tttttttatt	7200
tatgcagagg ccgaggccgc ctccggcctct gagctattcc agaagtagtg aggaggcttt	7260
tttggagggt gaccgccacg accggtgccg ccaccatccc ctgaccacg cccctgaccc	7320
ctcacaagga gacgaccttc catgaccgag tacaagccca cgggtgcgct cgccacccgc	7380
gacgacgtcc cccggggcgt acgcaccctc gccgcgcgt tcgccgacta ccccgccacg	7440
cgccacaccg tcgacccga ccgccacatc gaacgcgtca ccgagctgca agaactcttc	7500
ctcacgcgcg tcgggctcga catcggcaag gtgtgggtcg cggacgacgg cgccgcgggtg	7560
gcggctctgga ccacgccgga gagcgtcgaa gggggggcgg tgttcgcga gatcggcccg	7620
cgcattggccg agttgagcgg ttcccggctg gccgcgcagc aacagatgga aggcctcctg	7680
gcgcgcgacc ggcccaagga gccgcggtg ttccctggcca ccgtcggcgt ctgcgccgac	7740
caccagggca agggctctggg cagcgcgctc gtgctccccg gagtggaggc ggccgagcgc	7800

gccgggggtgc cgccttcct ggagacctcc ggcccccgca acctccccctt ctacgagcgg	7860
ctcggcttca ccgtcaccgc cgacgtcgag tgcccgaagg accgcgcgac ctggtgcatg	7920
acccgcaagc ccggtgcctg acgcccgcgc caccgcccgc agcgcccgac cgaaaggagc	7980
gcacgacccg gtcgacggc ggcccacggg tcccaggggg gtcgacctcg aaacttgttt	8040
attgcagctt ataatgggtta caaataaagc aatagcatca caaatttcac aaataaagca	8100
tttttttcac tgcattctag ttgtggtttg tccaaactca tcaatgtatc ttatcatgtc	8160
tggatcgatc cgaacccctt cctcgaccaa ttctcatggt tgacagctta tcatcgcaga	8220
tccgggcaac gttgttgcat tgctgcaggc gcagaactgg taggtatgga agatctatac	8280
attgaatcaa tattggcaat tagccatatt agtcattggg tatatagcat aaatcaatat	8340
tggtatttgg ccattgcata cggtgtatct atatcataat atgtacattt atattggctc	8400
atgtccaata tgaccgcat gttgacattg attattgact agttattaat agtaatcaat	8460
tacgggggtca ttagttcata gcccatatat ggagttccgc gttacataac ttacggtaaa	8520
tgggccgcct ggctgaccgc ccaacgaccc ccgcccattg acgtcaataa tgacgtatgt	8580
tcccatagta acgccaatag ggactttcca ttgacgtcaa tgggtggagt atttacggta	8640
aactgcccac ttggcagtac atcaagtgt tcatatgcc agtccgcccc ctattgacgt	8700
caatgacggg aaatggcccg cctggcatta tgcccagtac atgaccttac gggactttcc	8760
tacttggcag tacatctacg tattagtcac cgctattacc atgggtgatgc ggttttggca	8820
gtacaccaat gggcggtgat agcggtttga ctcacgggga tttccaagtc tccaccccat	8880
tgacgtcaat gggagtttgt tttggcacca aaatcaacgg gactttccaa aatgtcgtaa	8940
taaccccgcc ccgttgacgc aaatgggcgg taggcgtgta cgggtgggagg tctatataag	9000
cagagctcgt ttagtgaacc gtcagatctc tagaagctgg gtaccgggat ccagcagctg	9060
ggctcgaggt gctagcggga ggggggtggat gtgggatcga aggtcgcaag ctactcaca	9120
catgcccacc gtgcccagca cctgaagccg agggggcacc gtcagtcttc ctcttcccc	9180
caaaacccaa ggacaccctc atgatctccc ggaccctga ggtcacatgc gtggtggtgg	9240
acgtgagcca cgaagaccct gaggtcaagt tcaactggta cgtggacggc gtggagggtgc	9300
ataatgccaa gacaaagccg cgggaggagc agtacaacag cacgtaccgt gtggtcagcg	9360
tcctcacctg cctgcaccag gactggctga atggcaagga gtacaagtgc aagggtctcca	9420
acaaagccct ccagcctcc atcgagaaaa ccatctccaa agccaaaggg cagccccgag	9480
aaccacaggt gtacaccctg ccccatccc gggatgagct gaccaagaac caggtcagcc	9540
tgacctgcct ggtcaaaggc ttctatccca gcgacatcgc cgtggagtgg gagagcaatg	9600

```

ggcagccgga gaacaactac aagaccacgc ctcccgtggt ggactccgac ggctccttct 9660
tcctctacag caagctcacc gtggacaaga gcaggtggca gcaggggaac gtcttctcat 9720
gctccgtgat gcatgaggct ctgcacaacc actacacgca gaagagcctc tccctgtctc 9780
cgggtaaatg actcgaggcc cgaacaaaaa ctcatctcag aagaggatct gaatagcgcc 9840
gtcgaccatc atcatcatca tcattgagtt tnaacgatcc agacatgata agatacattg 9900
atgagtttgg acaaaccaca actagaatgc agtgaaaaaa atgctttatt tgtgaaattt 9960
gtgatgctat tgctttatct gtaaccatta taagctgcaa taaacaagtt aacaacaaca 10020
attgcattca ttttatgttt caggttcagg gggaggtggg gaggtttttt aaagcaagta 10080
aaacctctac aaatgtggta tggctgatta tgatccggct gcctcgcgcg tttcgggtgat 10140
gacggtgaaa acctctgaca catgcagctc ccggagacgg tcacagcttg tctgtaagcg 10200
gatgccggga gcagacaagc ccgtcagggc gcgtcagcgg gtggtggcgg gtgtcggggc 10260
gcagccatga ccggtcgact ctaga 10285

```

```

<210> 284
<211> 19
<212> DNA
<213> Artificial Sequence

```

```

<220>
<223> 5'LT oligonucleotide

```

```

<400> 284
cttgggtgccg caggatcag 19

```

```

<210> 285
<211> 19
<212> DNA
<213> Artificial Sequence

```

```

<220>
<223> 3'LT oligonucleotide

```

```

<400> 285
cagatggctg tcacccac 19

```

```

<210> 286
<211> 37
<212> DNA
<213> Artificial Sequence

```

```

<220>
<223> 5'LT long-NheI oligonucleotide

```

```

<400> 286
gcccgtagc ctgcgggtgt caggatcagg gacgtcg 37

```

<210> 287  
<211> 37  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> 5'LT short-NheI oligonucleotide

<400> 287  
gcccgctagc ctgcggtggt tctccagctg cggattc

37

<210> 288  
<211> 33  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> 3'LT stop-NotI oligonucleotide

<400> 288  
caatgactgc ggccgcttac cccaccatca ccg

33

<210> 289  
<211> 504  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> GST-EK-C-LT-beta-49-306 fusion protein

<400> 289

Ala Pro Leu Val Met Ser Pro Ile Leu Gly Tyr Trp Lys Ile Lys Gly  
1 5 10 15

Leu Val Gln Pro Thr Arg Leu Leu Leu Glu Tyr Leu Glu Glu Lys Tyr  
20 25 30

Glu Glu His Leu Tyr Glu Arg Asp Glu Gly Asp Lys Trp Arg Asn Lys  
35 40 45

Lys Phe Glu Leu Gly Leu Glu Phe Pro Asn Leu Pro Tyr Tyr Ile Asp  
50 55 60

Gly Asp Val Lys Leu Thr Gln Ser Met Ala Ile Ile Arg Tyr Ile Ala  
65 70 75 80

Asp Lys His Asn Met Leu Gly Gly Cys Pro Lys Glu Arg Ala Glu Ile  
85 90 95

Ser Met Leu Glu Gly Ala Val Leu Asp Ile Arg Tyr Gly Val Ser Arg  
100 105 110

Ile Ala Tyr Ser Lys Asp Phe Glu Thr Leu Lys Val Asp Phe Leu Ser  
115 120 125

Lys Leu Pro Glu Met Leu Lys Met Phe Glu Asp Arg Leu Cys His Lys  
130 135 140

Thr Tyr Leu Asn Gly Asp His Val Thr His Pro Asp Phe Met Leu Tyr  
145 150 155 160

Asp Ala Leu Asp Val Val Leu Tyr Met Asp Pro Met Cys Leu Asp Ala  
165 170 175

Phe Pro Lys Leu Val Cys Phe Lys Lys Arg Ile Glu Ala Ile Pro Gln  
180 185 190

Ile Asp Lys Tyr Leu Lys Ser Ser Lys Tyr Ile Ala Trp Pro Leu Gln  
195 200 205

Gly Trp Gln Ala Thr Phe Gly Gly Gly Asp His Pro Pro Lys Ala Ser  
210 215 220

Met Thr Gly Gly Gln Gln Met Gly Arg Asp Leu Tyr Asp Asp Asp Asp  
225 230 235 240

Lys Leu Ala Cys Gly Gly Gln Asp Gln Gly Arg Arg Val Glu Lys Ile  
245 250 255

Ile Gly Ser Gly Ala Gln Ala Gln Lys Arg Leu Asp Asp Ser Lys Pro  
260 265 270

Ser Cys Ile Leu Pro Ser Pro Ser Ser Leu Ser Glu Thr Pro Asp Pro  
275 280 285

Arg Leu His Pro Gln Arg Ser Asn Ala Ser Arg Asn Leu Ala Ser Thr  
290 295 300

Ser Gln Gly Pro Val Ala Gln Ser Ser Arg Glu Ala Ser Ala Trp Met  
305 310 315 320

Thr Ile Leu Ser Pro Ala Ala Asp Ser Thr Pro Asp Pro Gly Val Gln  
325 330 335

Gln Leu Pro Lys Gly Glu Pro Glu Thr Asp Leu Asn Pro Glu Leu Pro  
340 345 350



Ala Ala His Leu Ile Gly Ala Trp Met Ser Gly Gln Gly Leu Ser Trp  
355 360 365

Glu Ala Ser Gln Glu Glu Ala Phe Leu Arg Ser Gly Ala Gln Phe Ser  
370 375 380

Pro Thr His Gly Leu Ala Leu Pro Gln Asp Gly Val Tyr Tyr Leu Tyr  
385 390 395 400

Cys His Val Gly Tyr Arg Gly Arg Thr Pro Pro Ala Gly Arg Ser Arg  
405 410 415

Ala Arg Ser Leu Thr Leu Arg Ser Ala Leu Tyr Arg Ala Gly Gly Ala  
420 425 430

Tyr Gly Arg Gly Ser Pro Glu Leu Leu Leu Glu Gly Ala Glu Thr Val  
435 440 445

Thr Pro Val Val Asp Pro Ile Gly Tyr Gly Ser Leu Trp Tyr Thr Ser  
450 455 460

Val Gly Phe Gly Gly Leu Ala Gln Leu Arg Ser Gly Glu Arg Val Tyr  
465 470 475 480

Val Asn Ile Ser His Pro Asp Met Val Asp Tyr Arg Arg Gly Lys Thr  
485 490 495

Phe Phe Gly Ala Val Met Val Gly  
500

<210> 290

<211> 427

<212> PRT

<213> Artificial Sequence

<220>

<223> GST-EK-C-LT\_126-306 fusion protein

<400> 290

Ala Pro Leu Val Met Ser Pro Ile Leu Gly Tyr Trp Lys Ile Lys Gly  
1 5 10 15

Leu Val Gln Pro Thr Arg Leu Leu Leu Glu Tyr Leu Glu Glu Lys Tyr  
20 25 30

Glu Glu His Leu Tyr Glu Arg Asp Glu Gly Asp Lys Trp Arg Asn Lys  
35 40 45

Lys Phe Glu Leu Gly Leu Glu Phe Pro Asn Leu Pro Tyr Tyr Ile Asp  
50 55 60

Gly Asp Val Lys Leu Thr Gln Ser Met Ala Ile Ile Arg Tyr Ile Ala  
65 70 75 80

Asp Lys His Asn Met Leu Gly Gly Cys Pro Lys Glu Arg Ala Glu Ile  
85 90 95

Ser Met Leu Glu Gly Ala Val Leu Asp Ile Arg Tyr Gly Val Ser Arg  
100 105 110

Ile Ala Tyr Ser Lys Asp Phe Glu Thr Leu Lys Val Asp Phe Leu Ser  
115 120 125

Lys Leu Pro Glu Met Leu Lys Met Phe Glu Asp Arg Leu Cys His Lys  
130 135 140

Thr Tyr Leu Asn Gly Asp His Val Thr His Pro Asp Phe Met Leu Tyr  
145 150 155 160

Asp Ala Leu Asp Val Val Leu Tyr Met Asp Pro Met Cys Leu Asp Ala  
165 170 175

Phe Pro Lys Leu Val Cys Phe Lys Lys Arg Ile Glu Ala Ile Pro Gln  
180 185 190

Ile Asp Lys Tyr Leu Lys Ser Ser Lys Tyr Ile Ala Trp Pro Leu Gln  
195 200 205

Gly Trp Gln Ala Thr Phe Gly Gly Gly Asp His Pro Pro Lys Ala Ser  
210 215 220

Met Thr Gly Gly Gln Gln Met Gly Arg Asp Leu Tyr Asp Asp Asp Asp  
225 230 235 240

Lys Leu Ala Cys Gly Gly Ser Pro Ala Ala Asp Ser Thr Pro Asp Pro  
245 250 255

Gly Val Gln Gln Leu Pro Lys Gly Glu Pro Glu Thr Asp Leu Asn Pro  
260 265 270

Glu Leu Pro Ala Ala His Leu Ile Gly Ala Trp Met Ser Gly Gln Gly  
275 280 285

Leu Ser Trp Glu Ala Ser Gln Glu Glu Ala Phe Leu Arg Ser Gly Ala  
290 295 300

Gln Phe Ser Pro Thr His Gly Leu Ala Leu Pro Gln Asp Gly Val Tyr  
305 310 315 320

Tyr Leu Tyr Cys His Val Gly Tyr Arg Gly Arg Thr Pro Pro Ala Gly  
325 330 335

Arg Ser Arg Ala Arg Ser Leu Thr Leu Arg Ser Ala Leu Tyr Arg Ala  
340 345 350

Gly Gly Ala Tyr Gly Arg Gly Ser Pro Glu Leu Leu Leu Glu Gly Ala  
355 360 365

Glu Thr Val Thr Pro Val Val Asp Pro Ile Gly Tyr Gly Ser Leu Trp  
370 375 380

Tyr Thr Ser Val Gly Phe Gly Gly Leu Ala Gln Leu Arg Ser Gly Glu  
385 390 395 400

Arg Val Tyr Val Asn Ile Ser His Pro Asp Met Val Asp Tyr Arg Arg  
405 410 415

Gly Lys Thr Phe Phe Gly Ala Val Met Val Gly  
420 425

<210> 291  
<211> 311  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> his-myc-EK-C-LT\_49-306 fusion protein

<400> 291

Ala Pro Leu Val His His His His His His Gly Pro Leu Val Asp Val  
1 5 10 15

Ala Ser Asn Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Ala Ser Met  
20 25 30

Thr Gly Gly Gln Gln Met Gly Arg Asp Leu Tyr Asp Asp Asp Asp Lys  
35 40 45

Leu Ala Cys Gly Gly Gln Asp Gln Gly Arg Arg Val Glu Lys Ile Ile  
50 55 60

Gly	Ser	Gly	Ala	Gln	Ala	Gln	Lys	Arg	Leu	Asp	Asp	Ser	Lys	Pro	Ser	
65					70					75					80	
Cys	Ile	Leu	Pro	Ser	Pro	Ser	Ser	Leu	Ser	Glu	Thr	Pro	Asp	Pro	Arg	
				85					90					95		
Leu	His	Pro	Gln	Arg	Ser	Asn	Ala	Ser	Arg	Asn	Leu	Ala	Ser	Thr	Ser	
			100					105					110			
Gln	Gly	Pro	Val	Ala	Gln	Ser	Ser	Arg	Glu	Ala	Ser	Ala	Trp	Met	Thr	
		115					120					125				
Ile	Leu	Ser	Pro	Ala	Ala	Asp	Ser	Thr	Pro	Asp	Pro	Gly	Val	Gln	Gln	
	130					135					140					
Leu	Pro	Lys	Gly	Glu	Pro	Glu	Thr	Asp	Leu	Asn	Pro	Glu	Leu	Pro	Ala	
145					150					155					160	
Ala	His	Leu	Ile	Gly	Ala	Trp	Met	Ser	Gly	Gln	Gly	Leu	Ser	Trp	Glu	
				165					170					175		
Ala	Ser	Gln	Glu	Glu	Ala	Phe	Leu	Arg	Ser	Gly	Ala	Gln	Phe	Ser	Pro	
			180					185					190			
Thr	His	Gly	Leu	Ala	Leu	Pro	Gln	Asp	Gly	Val	Tyr	Tyr	Leu	Tyr	Cys	
		195					200					205				
His	Val	Gly	Tyr	Arg	Gly	Arg	Thr	Pro	Pro	Ala	Gly	Arg	Ser	Arg	Ala	
	210					215					220					
Arg	Ser	Leu	Thr	Leu	Arg	Ser	Ala	Leu	Tyr	Arg	Ala	Gly	Gly	Ala	Tyr	
225					230					235					240	
Gly	Arg	Gly	Ser	Pro	Glu	Leu	Leu	Leu	Glu	Gly	Ala	Glu	Thr	Val	Thr	
				245					250					255		
Pro	Val	Val	Asp	Pro	Ile	Gly	Tyr	Gly	Ser	Leu	Trp	Tyr	Thr	Ser	Val	
			260					265					270			
Gly	Phe	Gly	Gly	Leu	Ala	Gln	Leu	Arg	Ser	Gly	Glu	Arg	Val	Tyr	Val	
		275					280					285				
Asn	Ile	Ser	His	Pro	Asp	Met	Val	Asp	Tyr	Arg	Arg	Gly	Lys	Thr	Phe	
	290					295					300					

Phe Gly Ala Val Met Val Gly  
305 310

<210> 292  
<211> 234  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> his-myc-EK-C-LT\_126-306 fusion protein

<400> 292

Ala Pro Leu Val His His His His His His Gly Pro Leu Val Asp Val  
1 5 10 15

Ala Ser Asn Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Ala Ser Met  
20 25 30

Thr Gly Gly Gln Gln Met Gly Arg Asp Leu Tyr Asp Asp Asp Asp Lys  
35 40 45

Leu Ala Cys Gly Gly Ser Pro Ala Ala Asp Ser Thr Pro Asp Pro Gly  
50 55 60

Val Gln Gln Leu Pro Lys Gly Glu Pro Glu Thr Asp Leu Asn Pro Glu  
65 70 75 80

Leu Pro Ala Ala His Leu Ile Gly Ala Trp Met Ser Gly Gln Gly Leu  
85 90 95

Ser Trp Glu Ala Ser Gln Glu Glu Ala Phe Leu Arg Ser Gly Ala Gln  
100 105 110

Phe Ser Pro Thr His Gly Leu Ala Leu Pro Gln Asp Gly Val Tyr Tyr  
115 120 125

Leu Tyr Cys His Val Gly Tyr Arg Gly Arg Thr Pro Pro Ala Gly Arg  
130 135 140

Ser Arg Ala Arg Ser Leu Thr Leu Arg Ser Ala Leu Tyr Arg Ala Gly  
145 150 155 160

Gly Ala Tyr Gly Arg Gly Ser Pro Glu Leu Leu Leu Glu Gly Ala Glu  
165 170 175

Thr Val Thr Pro Val Val Asp Pro Ile Gly Tyr Gly Ser Leu Trp Tyr  
180 185 190

Thr Ser Val Gly Phe Gly Gly Leu Ala Gln Leu Arg Ser Gly Glu Arg  
195 200 205

Val Tyr Val Asn Ile Ser His Pro Asp Met Val Asp Tyr Arg Arg Gly  
210 215 220

Lys Thr Phe Phe Gly Ala Val Met Val Gly  
225 230

<210> 293  
<211> 43  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> MCS-1F primer

<400> 293  
tatggatccg gctagcgctc gagggtttaa acggcggccg cat 43

<210> 294  
<211> 45  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> MCS-1R primer

<400> 294  
tcgaatgcgg ccgccgttta aaccctcgag cgctagccgg atcca 45

<210> 295  
<211> 58  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Bamhis6-EK-Nhe-F oligonucleotide

<400> 295  
gatccacacc accaccacca ccacggttct ggtgacgacg atgacaaagc gctagccc 58

<210> 296  
<211> 58  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Bamhis6-EK-Nhe-R oligonucleotide

<400> 296  
tcgagggcta gcgctttgtc atcgctcgta ccagaaccgt ggtggtggtg gtggtgtg 58

<210> 297  
<211> 42  
<212> DNA  
<213> Artificial Sequence  
  
<220>  
<223> oligo1F-C-glycine-linker  
  
<400> 297  
tcgagggtgg tgggtggtgg tgcggttaat aagtttaaac gc 42  
  
<210> 298  
<211> 42  
<212> DNA  
<213> Artificial Sequence  
  
<220>  
<223> oligo1R-C-glycine-linker  
  
<400> 298  
ggccgcgttt aaacttatta accgcaacca ccaccaccac cc 42  
  
<210> 299  
<211> 51  
<212> DNA  
<213> Artificial Sequence  
  
<220>  
<223> oligo1F-C-gamma1-linker  
  
<400> 299  
tcgaggataa aaccacacacc tctccgccgt gtggttaata agtttaaacg c 51  
  
<210> 300  
<211> 51  
<212> DNA  
<213> Artificial Sequence  
  
<220>  
<223> oligo1R-C-gamma1-linker  
  
<400> 300  
ggccgcgttt aaacttatta accacacggc ggagaggtgt gggttttatc c 51  
  
<210> 301  
<211> 36  
<212> DNA  
<213> Artificial Sequence  
  
<220>  
<223> oligo1FA-C-gamma3-linker  
  
<400> 301  
tcgagccgaa accgtctacc ccgccgggtt cttctg 36

<210> 302  
<211> 38  
<212> DNA  
<213> Artificial Sequence  
  
<220>  
<223> oligo1RA-C-gamma3-linker  
  
<400> 302  
caccaccaga agaaccggc ggggtagacg gtttcggc 38  
  
<210> 303  
<211> 39  
<212> DNA  
<213> Artificial Sequence  
  
<220>  
<223> oligo2FB-C-gamma3-linker  
  
<400> 303  
gtggtgctcc gggtggttgc ggtaataag tttaaacgc 39  
  
<210> 304  
<211> 37  
<212> DNA  
<213> Artificial Sequence  
  
<220>  
<223> oligo2RB-C-gamma3-linker  
  
<400> 304  
ggccgcgttt aaacttatta accgcaacca cccggag 37  
  
<210> 305  
<211> 33  
<212> DNA  
<213> Artificial Sequence  
  
<220>  
<223> rMIF-F oligonucleotide  
  
<400> 305  
ggaattccat atgcctatgt tcatcgtgaa cac 33  
  
<210> 306  
<211> 29  
<212> DNA  
<213> Artificial Sequence  
  
<220>  
<223> rMIF-Xho-R oligonucleotide  
  
<400> 306  
cccgctcgag agcgaaggtg gaaccgttc 29  
  
<210> 307



<211> 124  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> rMIF-C1

<400> 307

Met Pro Met Phe Ile Val Asn Thr Asn Val Pro Arg Ala Ser Val Pro  
1 5 10 15

Glu Gly Phe Leu Ser Glu Leu Thr Gln Gln Leu Ala Gln Ala Thr Gly  
20 25 30

Lys Pro Ala Gln Tyr Ile Ala Val His Val Val Pro Asp Gln Leu Met  
35 40 45

Thr Phe Ser Gly Thr Ser Asp Pro Cys Ala Leu Cys Ser Leu His Ser  
50 55 60

Ile Gly Lys Ile Gly Gly Ala Gln Asn Arg Asn Tyr Ser Lys Leu Leu  
65 70 75 80

Cys Gly Leu Leu Ser Asp Arg Leu His Ile Ser Pro Asp Arg Val Tyr  
85 90 95

Ile Asn Tyr Tyr Asp Met Asn Ala Ala Asn Val Gly Trp Asn Gly Ser  
100 105 110

Thr Phe Ala Leu Glu Gly Gly Gly Gly Cys Gly  
115 120

<210> 308  
<211> 127  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> rMIF-C2

<400> 308

Met Pro Met Phe Ile Val Asn Thr Asn Val Pro Arg Ala Ser Val Pro  
1 5 10 15

Glu Gly Phe Leu Ser Glu Leu Thr Gln Gln Leu Ala Gln Ala Thr Gly  
20 25 30

Lys Pro Ala Gln Tyr Ile Ala Val His Val Val Pro Asp Gln Leu Met  
35 40 45

Thr Phe Ser Gly Thr Ser Asp Pro Cys Ala Leu Cys Ser Leu His Ser  
50 55 60

Ile Gly Lys Ile Gly Gly Ala Gln Asn Arg Asn Tyr Ser Lys Leu Leu  
65 70 75 80

Cys Gly Leu Leu Ser Asp Arg Leu His Ile Ser Pro Asp Arg Val Tyr  
85 90 95

Ile Asn Tyr Tyr Asp Met Asn Ala Ala Asn Val Gly Trp Asn Gly Ser  
100 105 110

Thr Phe Ala Leu Glu Asp Lys Thr His Thr Ser Pro Pro Cys Gly  
115 120 125

<210> 309  
<211> 135  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> rMIF-C3

<400> 309

Met Pro Met Phe Ile Val Asn Thr Asn Val Pro Arg Ala Ser Val Pro  
1 5 10 15

Glu Gly Phe Leu Ser Glu Leu Thr Gln Gln Leu Ala Gln Ala Thr Gly  
20 25 30

Lys Pro Ala Gln Tyr Ile Ala Val His Val Val Pro Asp Gln Leu Met  
35 40 45

Thr Phe Ser Gly Thr Ser Asp Pro Cys Ala Leu Cys Ser Leu His Ser  
50 55 60

Ile Gly Lys Ile Gly Gly Ala Gln Asn Arg Asn Tyr Ser Lys Leu Leu  
65 70 75 80

Cys Gly Leu Leu Ser Asp Arg Leu His Ile Ser Pro Asp Arg Val Tyr  
85 90 95

Ile Asn Tyr Tyr Asp Met Asn Ala Ala Asn Val Gly Trp Asn Gly Ser  
100 105 110

Thr Phe Ala Leu Glu Pro Lys Pro Ser Thr Pro Pro Gly Ser Ser Gly

115 120 125

Gly Ala Pro Gly Gly Cys Gly  
130 135

<210> 310  
<211> 124  
<212> PRT  
<213> Homo sapiens

<400> 310

Met Pro Met Phe Ile Val Asn Thr Asn Val Pro Arg Ala Ser Val Pro  
1 5 10 15

Asp Gly Phe Leu Ser Glu Leu Thr Gln Gln Leu Ala Gln Ala Thr Gly  
20 25 30

Lys Pro Pro Gln Tyr Ile Ala Val His Val Val Pro Asp Gln Leu Met  
35 40 45

Ala Phe Gly Gly Ser Ser Glu Pro Cys Ala Leu Cys Ser Leu His Ser  
50 55 60

Ile Gly Lys Ile Gly Gly Ala Gln Asn Arg Ser Tyr Ser Lys Leu Leu  
65 70 75 80

Cys Gly Leu Leu Ala Glu Arg Leu Arg Ile Ser Pro Asp Arg Val Tyr  
85 90 95

Ile Asn Tyr Tyr Asp Met Asn Ala Ala Asn Val Gly Trp Asn Asn Ser  
100 105 110

Thr Phe Ala Leu Glu Gly Gly Gly Gly Gly Cys Gly  
115 120

<210> 311  
<211> 123  
<212> PRT  
<213> Homo sapiens

<400> 311

Pro Met Phe Ile Val Asn Thr Asn Val Pro Arg Ala Ser Val Pro Asp  
1 5 10 15

Gly Phe Leu Ser Glu Leu Thr Gln Gln Leu Ala Gln Ala Thr Gly Lys  
20 25 30

Pro Pro Gln Tyr Ile Ala Val His Val Val Pro Asp Gln Leu Met Ala  
35 40 45

Phe Gly Gly Ser Ser Glu Pro Cys Ala Leu Cys Ser Leu His Ser Ile  
50 55 60

Gly Lys Ile Gly Gly Ala Gln Asn Arg Ser Tyr Ser Lys Leu Leu Cys  
65 70 75 80

Gly Leu Leu Ala Glu Arg Leu Arg Ile Ser Pro Asp Arg Val Tyr Ile  
85 90 95

Asn Tyr Tyr Asp Met Asn Ala Ala Asn Val Gly Trp Asn Asn Ser Thr  
100 105 110

Phe Ala Leu Glu Gly Gly Gly Gly Gly Cys Gly  
115 120

<210> 312  
<211> 127  
<212> PRT  
<213> Homo sapiens

<400> 312

Met Pro Met Phe Ile Val Asn Thr Asn Val Pro Arg Ala Ser Val Pro  
1 5 10 15

Asp Gly Phe Leu Ser Glu Leu Thr Gln Gln Leu Ala Gln Ala Thr Gly  
20 25 30

Lys Pro Pro Gln Tyr Ile Ala Val His Val Val Pro Asp Gln Leu Met  
35 40 45

Ala Phe Gly Gly Ser Ser Glu Pro Cys Ala Leu Cys Ser Leu His Ser  
50 55 60

Ile Gly Lys Ile Gly Gly Ala Gln Asn Arg Ser Tyr Ser Lys Leu Leu  
65 70 75 80

Cys Gly Leu Leu Ala Glu Arg Leu Arg Ile Ser Pro Asp Arg Val Tyr  
85 90 95

Ile Asn Tyr Tyr Asp Met Asn Ala Ala Asn Val Gly Trp Asn Asn Ser  
100 105 110

Thr Phe Ala Leu Glu Asp Lys Thr His Thr Ser Pro Pro Cys Gly  
115 120 125

<210> 313  
<211> 126  
<212> PRT  
<213> Homo sapiens

<400> 313

Pro Met Phe Ile Val Asn Thr Asn Val Pro Arg Ala Ser Val Pro Asp  
1 5 10 15

Gly Phe Leu Ser Glu Leu Thr Gln Gln Leu Ala Gln Ala Thr Gly Lys  
20 25 30

Pro Pro Gln Tyr Ile Ala Val His Val Val Pro Asp Gln Leu Met Ala  
35 40 45

Phe Gly Gly Ser Ser Glu Pro Cys Ala Leu Cys Ser Leu His Ser Ile  
50 55 60

Gly Lys Ile Gly Gly Ala Gln Asn Arg Ser Tyr Ser Lys Leu Leu Cys  
65 70 75 80

Gly Leu Leu Ala Glu Arg Leu Arg Ile Ser Pro Asp Arg Val Tyr Ile  
85 90 95

Asn Tyr Tyr Asp Met Asn Ala Ala Asn Val Gly Trp Asn Asn Ser Thr  
100 105 110

Phe Ala Leu Glu Asp Lys Thr His Thr Ser Pro Pro Cys Gly  
115 120 125

<210> 314  
<211> 135  
<212> PRT  
<213> Homo sapiens

<400> 314

Met Pro Met Phe Ile Val Asn Thr Asn Val Pro Arg Ala Ser Val Pro  
1 5 10 15

Asp Gly Phe Leu Ser Glu Leu Thr Gln Gln Leu Ala Gln Ala Thr Gly  
20 25 30

Lys Pro Pro Gln Tyr Ile Ala Val His Val Val Pro Asp Gln Leu Met  
35 40 45

Ala Phe Gly Gly Ser Ser Glu Pro Cys Ala Leu Cys Ser Leu His Ser

```

50              55              60

Ile Gly Lys Ile Gly Gly Ala Gln Asn Arg Ser Tyr Ser Lys Leu Leu
65              70              75              80

Cys Gly Leu Leu Ala Glu Arg Leu Arg Ile Ser Pro Asp Arg Val Tyr
85              90              95

Ile Asn Tyr Tyr Asp Met Asn Ala Ala Asn Val Gly Trp Asn Asn Ser
100             105             110

Thr Phe Ala Leu Glu Pro Lys Pro Ser Thr Pro Pro Gly Ser Ser Gly
115             120             125

Gly Ala Pro Gly Gly Cys Gly
130             135

<210> 315
<211> 134
<212> PRT
<213> Homo sapiens

<400> 315

Pro Met Phe Ile Val Asn Thr Asn Val Pro Arg Ala Ser Val Pro Asp
1              5              10              15

Gly Phe Leu Ser Glu Leu Thr Gln Gln Leu Ala Gln Ala Thr Gly Lys
20             25             30

Pro Pro Gln Tyr Ile Ala Val His Val Val Pro Asp Gln Leu Met Ala
35             40             45

Phe Gly Gly Ser Ser Glu Pro Cys Ala Leu Cys Ser Leu His Ser Ile
50             55             60

Gly Lys Ile Gly Gly Ala Gln Asn Arg Ser Tyr Ser Lys Leu Leu Cys
65             70             75             80

Gly Leu Leu Ala Glu Arg Leu Arg Ile Ser Pro Asp Arg Val Tyr Ile
85             90             95

Asn Tyr Tyr Asp Met Asn Ala Ala Asn Val Gly Trp Asn Asn Ser Thr
100            105            110

Phe Ala Leu Glu Pro Lys Pro Ser Thr Pro Pro Gly Ser Ser Gly Gly
115            120            125

```

Ala Pro Gly Gly Cys Gly  
130

<210> 316  
<211> 62  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> RANKL-UP oligonucleotide

<400> 316  
ctgccagggg cccgggtgcg gcggtggcca tcatcaccac catcaccagc gcttctcagg 60  
ag 62

<210> 317  
<211> 35  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> RANKL-down oligonucleotide

<400> 317  
ccgctcgagt tagtctatgt cctgaacttt gaaag 35

<210> 318  
<211> 419  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> GST-PS-C-RANKL construct

<400> 318

Met Ser Pro Ile Leu Gly Tyr Trp Lys Ile Lys Gly Leu Val Gln Pro  
1 5 10 15

Thr Arg Leu Leu Leu Glu Tyr Leu Glu Glu Lys Tyr Glu Glu His Leu  
20 25 30

Tyr Glu Arg Asp Glu Gly Asp Lys Trp Arg Asn Lys Lys Phe Glu Leu  
35 40 45

Gly Leu Glu Phe Pro Asn Leu Pro Tyr Tyr Ile Asp Gly Asp Val Lys  
50 55 60

Leu Thr Gln Ser Met Ala Ile Ile Arg Tyr Ile Ala Asp Lys His Asn  
65 70 75 80

Met Leu Gly Gly Cys Pro Lys Glu Arg Ala Glu Ile Ser Met Leu Glu  
85 90 95

Gly Ala Val Leu Asp Ile Arg Tyr Gly Val Ser Arg Ile Ala Tyr Ser  
100 105 110

Lys Asp Phe Glu Thr Leu Lys Val Asp Phe Leu Ser Lys Leu Pro Glu  
115 120 125

Met Leu Lys Met Phe Glu Asp Arg Leu Cys His Lys Thr Tyr Leu Asn  
130 135 140

Gly Asp His Val Thr His Pro Asp Phe Met Leu Tyr Asp Ala Leu Asp  
145 150 155 160

Val Val Leu Tyr Met Asp Pro Met Cys Leu Asp Ala Phe Pro Lys Leu  
165 170 175

Val Cys Phe Lys Lys Arg Ile Glu Ala Ile Pro Gln Ile Asp Lys Tyr  
180 185 190

Leu Lys Ser Ser Lys Tyr Ile Ala Trp Pro Leu Gln Gly Trp Gln Ala  
195 200 205

Thr Phe Gly Gly Gly Asp His Pro Pro Lys Ser Asp Leu Glu Val Leu  
210 215 220

Phe Gln Gly Pro Gly Cys Gly Gly Gly His His His His His His Gln  
225 230 235 240

Arg Phe Ser Gly Ala Pro Ala Met Met Glu Gly Ser Trp Leu Asp Val  
245 250 255

Ala Gln Arg Gly Lys Pro Glu Ala Gln Pro Phe Ala His Leu Thr Ile  
260 265 270

Asn Ala Ala Ser Ile Pro Ser Gly Ser His Lys Val Thr Leu Ser Ser  
275 280 285

Trp Tyr His Asp Arg Gly Trp Ala Lys Ile Ser Asn Met Thr Leu Ser  
290 295 300

Asn Gly Lys Leu Arg Val Asn Gln Asp Gly Phe Tyr Tyr Leu Tyr Ala  
305 310 315 320

Asn Ile Cys Phe Arg His His Glu Thr Ser Gly Ser Val Pro Thr Asp



325 330 335

Tyr Leu Gln Leu Met Val Tyr Val Val Lys Thr Ser Ile Lys Ile Pro  
340 345 350

Ser Ser His Asn Leu Met Lys Gly Gly Ser Thr Lys Asn Trp Ser Gly  
355 360 365

Asn Ser Glu Phe His Phe Tyr Ser Ile Asn Val Gly Gly Phe Phe Lys  
370 375 380

Leu Arg Ala Gly Glu Glu Ile Ser Ile Gln Val Ser Asn Pro Ser Leu  
385 390 395 400

Leu Asp Pro Asp Gln Asp Ala Thr Tyr Phe Gly Ala Phe Lys Val Gln  
405 410 415

Asp Ile Asp

<210> 319  
<211> 1269  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> GST-PS-C-RANKL construct

<400> 319

atgtccccta tactagggtta ttggaaaatt aagggccttg tgcaaccac tcgacttctt 60

ttggaatata ttgaagaaaa atatgaagag catttgatg agcgcatga aggtgataaa 120

tggcgaaaca aaaagtttga attgggtttg gagtttccca atcttctta ttatattgat 180

ggtgatgtta aattaacaca gtctatggcc atcatacgtt atatacgtga caagcacaac 240

atgttggttg gttgtccaaa agagcgtgca gagatttcaa tgcttgaagg agcggttttg 300

gatattagat acggtgtttc gagaattgca tatagtaaag actttgaaac tctcaaagtt 360

gattttctta gcaagctacc tgaaatgctg aaaatgttcg aagatcgttt atgtcataaa 420

acatatttaa atggtgatca tgtaacccat cctgacttca tggtgatga cgctcttgat 480

gttgttttat acatggaccc aatgtgcctg gatgcgttcc caaaattagt ttgttttaaa 540

aaacgtattg aagctatccc acaaattgat aagtacttga aatccagcaa gtatatagca 600

tggcctttgc agggctggca agccacgttt ggtgggtggc accatcctcc aaaatcggat 660

ctggaagtgc tgttccaggg gcccggtgac ggcgggtggc atcatcacca ccaccagag 720

cgcttctcag gagctccagc tatgatggaa ggctcatggt tggatgtggc ccagcgaggc 780

```

aagcctgagg cccagccatt tgcacacctc accatcaatg ctgccagcat cccatcgggt      840
tcccatáaag tcactctgtc ctcttggtac cacgatcgag gctgggcaa gatctctaac      900
atgacgttaa gcaacggaaa actaagggtt aaccaagatg gcttctatta cctgtacgcc      960
aacatttgct ttcggcatca tgaaacatcg ggaagcgtac ctacagacta tcttcagctg     1020
atggtgtatg tcgttaaaac cagcatcaaa atcccaagtt ctcataacct gatgaaagga     1080
gggagcacga aaaactggtc gggcaattct gaattccact tttattccat aaatggtggg     1140
ggatTTTTca agctccgagc tggatgaaga attagcattc aggtgtccaa ccttccctg      1200
ctggatccgg atcaagatgc gacgtacttt ggggctttca aagttcagga catagactaa      1260
ctcgagcgg                                     1269

```

<210> 320

<211> 185

<212> PRT

<213> Homo sapiens

<400> 320

```

Gly Cys Gly Gly Gly Gln His Ile Arg Ala Glu Lys Ala Met Val Asp
1           5           10           15

```

```

Gly Ser Trp Leu Asp Leu Ala Lys Arg Ser Lys Leu Glu Ala Gln Pro
          20           25           30

```

```

Phe Ala His Leu Thr Ile Asn Ala Thr Asp Ile Pro Ser Gly Ser His
          35           40           45

```

```

Lys Val Ser Leu Ser Ser Trp Tyr His Asp Arg Gly Trp Ala Lys Ile
          50           55           60

```

```

Ser Asn Met Thr Phe Ser Asn Gly Lys Leu Ile Val Asn Gln Asp Gly
65           70           75           80

```

```

Phe Tyr Tyr Leu Tyr Ala Asn Ile Cys Phe Arg His His Glu Thr Ser
          85           90           95

```

```

Gly Asp Leu Ala Thr Glu Tyr Leu Gln Leu Met Val Tyr Val Thr Lys
          100           105           110

```

```

Thr Ser Ile Lys Ile Pro Ser Ser His Thr Leu Met Lys Gly Gly Ser
          115           120           125

```

```

Thr Lys Tyr Trp Ser Gly Asn Ser Glu Phe His Phe Tyr Ser Ile Asn
          130           135           140

```

Val Gly Gly Phe Phe Lys Leu Arg Ser Gly Glu Glu Ile Ser Ile Glu  
145 150 155 160

Val Ser Asn Pro Ser Leu Leu Asp Pro Asp Gln Asp Ala Thr Tyr Phe  
165 170 175

Gly Ala Phe Lys Val Arg Asp Ile Asp  
180 185

<210> 321  
<211> 29  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Primer 5'PrP-BamHI

<400> 321  
cgggatccca ccatggtggg gggccttgg 29

<210> 322  
<211> 24  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Primer 3'PrP-NheI

<400> 322  
ctagctagcc tggatcttct cccg 24

<210> 323  
<211> 350  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> mPrPt-EK-Fc construct

<400> 323

Met Val Gly Gly Leu Gly Gly Tyr Met Leu Gly Ser Ala Met Ser Arg  
1 5 10 15

Pro Met Ile His Phe Gly Asn Asp Trp Glu Asp Arg Tyr Tyr Arg Glu  
20 25 30

Asn Met Tyr Arg Tyr Pro Asn Gln Val Tyr Tyr Arg Pro Val Asp Gln  
35 40 45

Tyr Ser Asn Gln Asn Asn Phe Val His Asp Cys Val Asn Ile Thr Ile

50						55						60					
Lys	Gln	His	Thr	Val	Thr	Thr	Thr	Thr	Lys	Gly	Glu	Asn	Phe	Thr	Glu		
65					70					75					80		
Thr	Asp	Val	Lys	Met	Met	Glu	Arg	Val	Val	Glu	Gln	Met	Cys	Val	Thr		
				85					90					95			
Gln	Tyr	Gln	Lys	Glu	Ser	Gln	Ala	Tyr	Tyr	Asp	Gly	Arg	Ser	Arg	Leu		
			100					105					110				
Ala	Gly	Gly	Gly	Gly	Cys	Gly	Asp	Asp	Asp	Asp	Lys	Leu	Thr	His	Thr		
		115					120					125					
Cys	Pro	Pro	Cys	Pro	Ala	Pro	Glu	Ala	Glu	Gly	Ala	Pro	Ser	Val	Phe		
	130					135					140						
Leu	Phe	Pro	Pro	Lys	Pro	Lys	Asp	Thr	Leu	Met	Ile	Ser	Arg	Thr	Pro		
145				150						155					160		
Glu	Val	Thr	Cys	Val	Val	Val	Asp	Val	Ser	His	Glu	Asp	Pro	Glu	Val		
			165						170					175			
Lys	Phe	Asn	Trp	Tyr	Val	Asp	Gly	Val	Glu	Val	His	Asn	Ala	Lys	Thr		
		180						185					190				
Lys	Pro	Arg	Glu	Glu	Gln	Tyr	Asn	Ser	Thr	Tyr	Arg	Val	Val	Ser	Val		
	195						200					205					
Leu	Thr	Val	Leu	His	Gln	Asp	Trp	Leu	Asn	Gly	Lys	Glu	Tyr	Lys	Cys		
	210					215					220						
Lys	Val	Ser	Asn	Lys	Ala	Leu	Pro	Ala	Ser	Ile	Glu	Lys	Thr	Ile	Ser		
225					230					235					240		
Lys	Ala	Lys	Gly	Gln	Pro	Arg	Glu	Pro	Gln	Val	Tyr	Thr	Leu	Pro	Pro		
				245					250					255			
Ser	Arg	Asp	Glu	Leu	Thr	Lys	Asn	Gln	Val	Ser	Leu	Thr	Cys	Leu	Val		
		260						265					270				
Lys	Gly	Phe	Tyr	Pro	Ser	Asp	Ile	Ala	Val	Glu	Trp	Glu	Ser	Asn	Gly		
		275					280					285					
Gln	Pro	Glu	Asn	Asn	Tyr	Lys	Thr	Thr	Pro	Pro	Val	Leu	Asp	Ser	Asp		
	290					295					300						

Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp  
305 310 315 320

Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala Leu His  
325 330 335

Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys  
340 345 350

<210> 324  
<211> 124  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> mPrPt construct

<400> 324

Met Val Gly Gly Leu Gly Gly Tyr Met Leu Gly Ser Ala Met Ser Arg  
1 5 10 15

Pro Met Ile His Phe Gly Asn Asp Trp Glu Asp Arg Tyr Tyr Arg Glu  
20 25 30

Asn Met Tyr Arg Tyr Pro Asn Gln Val Tyr Tyr Arg Pro Val Asp Gln  
35 40 45

Tyr Ser Asn Gln Asn Asn Phe Val His Asp Cys Val Asn Ile Thr Ile  
50 55 60

Lys Gln His Thr Val Thr Thr Thr Lys Gly Glu Asn Phe Thr Glu  
65 70 75 80

Thr Asp Val Lys Met Met Glu Arg Val Val Glu Gln Met Cys Val Thr  
85 90 95

Gln Tyr Gln Lys Glu Ser Gln Ala Tyr Tyr Asp Gly Arg Ser Arg Leu  
100 105 110

Ala Gly Gly Gly Gly Cys Gly Asp Asp Asp Asp Lys  
115 120

<210> 325  
<211> 102  
<212> PRT  
<213> Artificial Sequence

<220>

<223> human resistin-C-Xa construct

<400> 325

Ser Ser Lys Thr Leu Cys Ser Met Glu Glu Ala Ile Asn Glu Arg Ile  
1 5 10 15

Gln Glu Val Ala Gly Ser Leu Ile Phe Arg Ala Ile Ser Ser Ile Gly  
20 25 30

Leu Glu Cys Gln Ser Val Thr Ser Arg Gly Asp Leu Ala Thr Cys Pro  
35 40 45

Arg Gly Phe Ala Val Thr Gly Cys Thr Cys Gly Ser Ala Cys Gly Ser  
50 55 60

Trp Asp Val Arg Ala Glu Thr Thr Cys His Cys Gln Cys Ala Gly Met  
65 70 75 80

Asp Trp Thr Gly Ala Arg Cys Cys Arg Val Gln Pro Gly Gly Gly Gly  
85 90 95

Cys Gly Ile Glu Gly Arg  
100

<210> 326

<211> 103

<212> PRT

<213> Artificial Sequence

<220>

<223> human resistin-C-EK construct

<400> 326

Ser Ser Lys Thr Leu Cys Ser Met Glu Glu Ala Ile Asn Glu Arg Ile  
1 5 10 15

Gln Glu Val Ala Gly Ser Leu Ile Phe Arg Ala Ile Ser Ser Ile Gly  
20 25 30

Leu Glu Cys Gln Ser Val Thr Ser Arg Gly Asp Leu Ala Thr Cys Pro  
35 40 45

Arg Gly Phe Ala Val Thr Gly Cys Thr Cys Gly Ser Ala Cys Gly Ser  
50 55 60

Trp Asp Val Arg Ala Glu Thr Thr Cys His Cys Gln Cys Ala Gly Met  
65 70 75 80

Asp Trp Thr Gly Ala Arg Cys Cys Arg Val Gln Pro Gly Gly Gly Gly  
85 90 95

Cys Gly Asp Asp Asp Asp Lys  
100

<210> 327

<211> 98

<212> PRT

<213> Artificial Sequence

<220>

<223> human resisititn-C construct

<400> 327

Ser Ser Lys Thr Leu Cys Ser Met Glu Glu Ala Ile Asn Glu Arg Ile  
1 5 10 15

Gln Glu Val Ala Gly Ser Leu Ile Phe Arg Ala Ile Ser Ser Ile Gly  
20 25 30

Leu Glu Cys Gln Ser Val Thr Ser Arg Gly Asp Leu Ala Thr Cys Pro  
35 40 45

Arg Gly Phe Ala Val Thr Gly Cys Thr Cys Gly Ser Ala Cys Gly Ser  
50 55 60

Trp Asp Val Arg Ala Glu Thr Thr Cys His Cys Gln Cys Ala Gly Met  
65 70 75 80

Asp Trp Thr Gly Ala Arg Cys Cys Arg Val Gln Pro Gly Gly Gly Gly  
85 90 95

Cys Gly

<210> 328

<211> 132

<212> PRT

<213> Artificial Sequence

<220>

<223> mouse C-IL-13-F construct

<400> 328

Ala Asp Pro Gly Cys Gly Gly Gly Gly Gly Leu Ala Gly Pro Val Pro  
1 5 10 15

Arg Ser Val Ser Leu Pro Leu Thr Leu Lys Glu Leu Ile Glu Glu Leu  
20 25 30

Ser Asn Ile Thr Gln Asp Gln Thr Pro Leu Cys Asn Gly Ser Met Val  
35 40 45

Trp Ser Val Asp Leu Ala Ala Gly Gly Phe Cys Val Ala Leu Asp Ser  
50 55 60

Leu Thr Asn Ile Ser Asn Cys Asn Ala Ile Tyr Arg Thr Gln Arg Ile  
65 70 75 80

Leu His Gly Leu Cys Asn Arg Lys Ala Pro Thr Thr Val Ser Ser Leu  
85 90 95

Pro Asp Thr Lys Ile Glu Val Ala His Phe Ile Thr Lys Leu Leu Ser  
100 105 110

Tyr Thr Lys Gln Leu Phe Arg His Gly Pro Phe Leu Glu Val Leu Ala  
115 120 125

Ile Glu Gly Arg  
130

<210> 329

<211> 119

<212> PRT

<213> Artificial Sequence

<220>

<223> mouse C-IL-13-S construct

<400> 329

Leu Ala Cys Gly Gly Gly Gly Gly Gly Pro Val Pro Arg Ser Val Ser  
1 5 10 15

Leu Pro Leu Thr Leu Lys Glu Leu Ile Glu Glu Leu Ser Asn Ile Thr  
20 25 30

Gln Asp Gln Thr Pro Leu Cys Asn Gly Ser Met Val Trp Ser Val Asp  
35 40 45

Leu Ala Ala Gly Gly Phe Cys Val Ala Leu Asp Ser Leu Thr Asn Ile  
50 55 60

Ser Asn Cys Asn Ala Ile Tyr Arg Thr Gln Arg Ile Leu His Gly Leu  
65 70 75 80



Cys Asn Arg Lys Ala Pro Thr Thr Val Ser Ser Leu Pro Asp Thr Lys  
85 90 95

Ile Glu Val Ala His Phe Ile Thr Lys Leu Leu Ser Tyr Thr Lys Gln  
100 105 110

Leu Phe Arg His Gly Pro Phe  
115

<210> 330

<211> 133

<212> PRT

<213> Artificial Sequence

<220>

<223> human C-IL-13-F construct

<400> 330

Ala Asp Pro Gly Cys Gly Gly Gly Gly Gly Leu Ala Gly Pro Val Pro  
1 5 10 15

Pro Ser Thr Ala Leu Arg Glu Leu Ile Glu Glu Leu Val Asn Ile Thr  
20 25 30

Gln Asn Gln Lys Ala Pro Leu Cys Asn Gly Ser Met Val Trp Ser Ile  
35 40 45

Asn Leu Thr Ala Gly Met Tyr Cys Ala Ala Leu Glu Ser Leu Ile Asn  
50 55 60

Val Ser Gly Cys Ser Ala Ile Glu Lys Thr Gln Arg Met Leu Ser Gly  
65 70 75 80

Phe Cys Pro His Lys Val Ser Ala Gly Gln Phe Ser Ser Leu His Val  
85 90 95

Arg Asp Thr Lys Ile Glu Val Ala Gln Phe Val Lys Asp Leu Leu Leu  
100 105 110

His Leu Lys Lys Leu Phe Arg Glu Gly Arg Phe Asn Leu Glu Val Leu  
115 120 125

Ala Ile Glu Gly Arg  
130

<210> 331

<211> 120  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> human C-IL-13-S construct

<400> 331

Leu Ala Cys Gly Gly Gly Gly Gly Gly Pro Val Pro Pro Ser Thr Ala  
1 5 10 15

Leu Arg Glu Leu Ile Glu Glu Leu Val Asn Ile Thr Gln Asn Gln Lys  
20 25 30

Ala Pro Leu Cys Asn Gly Ser Met Val Trp Ser Ile Asn Leu Thr Ala  
35 40 45

Gly Met Tyr Cys Ala Ala Leu Glu Ser Leu Ile Asn Val Ser Gly Cys  
50 55 60

Ser Ala Ile Glu Lys Thr Gln Arg Met Leu Ser Gly Phe Cys Pro His  
65 70 75 80

Lys Val Ser Ala Gly Gln Phe Ser Ser Leu His Val Arg Asp Thr Lys  
85 90 95

Ile Glu Val Ala Gln Phe Val Lys Asp Leu Leu Leu His Leu Lys Lys  
100 105 110

Leu Phe Arg Glu Gly Arg Phe Asn  
115 120

<210> 332  
<211> 136  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> . mouse C-IL-5-E construct

<400> 332

Ala Leu Val Gly Cys Gly Gly Pro Lys Pro Ser Thr Pro Pro Gly Ser  
1 5 10 15

Ser Gly Gly Ala Pro Ala Ser Met Glu Ile Pro Met Ser Thr Val Val  
20 25 30

Lys Glu Thr Leu Thr Gln Leu Ser Ala His Arg Ala Leu Leu Thr Ser  
35 40 45

Asn Glu Thr Met Arg Leu Pro Val Pro Thr His Lys Asn His Gln Leu  
50 55 60

Cys Ile Gly Glu Ile Phe Gln Gly Leu Asp Ile Leu Lys Asn Gln Thr  
65 70 75 80

Val Arg Gly Gly Thr Val Glu Met Leu Phe Gln Asn Leu Ser Leu Ile  
85 90 95

Lys Lys Tyr Ile Asp Arg Gln Lys Glu Lys Cys Gly Glu Glu Arg Arg  
100 105 110

Arg Thr Arg Gln Phe Leu Asp Tyr Leu Gln Glu Phe Leu Gly Val Met  
115 120 125

Ser Thr Glu Trp Ala Met Glu Gly  
130 135

<210> 333

<211> 134

<212> PRT

<213> Artificial Sequence

<220>

<223> mouse C-IL-5-F construct

<400> 333

Ala Asp Pro Gly Cys Gly Gly Gly Gly Gly Leu Ala Met Glu Ile Pro  
1 5 10 15

Met Ser Thr Val Val Lys Glu Thr Leu Thr Gln Leu Ser Ala His Arg  
20 25 30

Ala Leu Leu Thr Ser Asn Glu Thr Met Arg Leu Pro Val Pro Thr His  
35 40 45

Lys Asn His Gln Leu Cys Ile Gly Glu Ile Phe Gln Gly Leu Asp Ile  
50 55 60

Leu Lys Asn Gln Thr Val Arg Gly Gly Thr Val Glu Met Leu Phe Gln  
65 70 75 80

Asn Leu Ser Leu Ile Lys Lys Tyr Ile Asp Arg Gln Lys Glu Lys Cys  
85 90 95

Gly Glu Glu Arg Arg Arg Thr Arg Gln Phe Leu Asp Tyr Leu Gln Glu

100 105 110

Phe Leu Gly Val Met Ser Thr Glu Trp Ala Met Glu Gly Leu Glu Val  
115 120 125

Leu Ala Ile Glu Gly Arg  
130

<210> 334  
<211> 121  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> mouse C-IL-5-S construct

<400> 334

Leu Ala Cys Gly Gly Gly Gly Gly Met Glu Ile Pro Met Ser Thr Val  
1 5 10 15

Val Lys Glu Thr Leu Thr Gln Leu Ser Ala His Arg Ala Leu Leu Thr  
20 25 30

Ser Asn Glu Thr Met Arg Leu Pro Val Pro Thr His Lys Asn His Gln  
35 40 45

Leu Cys Ile Gly Glu Ile Phe Gln Gly Leu Asp Ile Leu Lys Asn Gln  
50 55 60

Thr Val Arg Gly Gly Thr Val Glu Met Leu Phe Gln Asn Leu Ser Leu  
65 70 75 80

Ile Lys Lys Tyr Ile Asp Arg Gln Lys Glu Lys Cys Gly Glu Glu Arg  
85 90 95

Arg Arg Thr Arg Gln Phe Leu Asp Tyr Leu Gln Glu Phe Leu Gly Val  
100 105 110

Met Ser Thr Glu Trp Ala Met Glu Gly  
115 120

<210> 335  
<211> 138  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> human C-IL-5-E construct

<400> 335

Ala Leu Val Gly Cys Gly Gly Pro Lys Pro Ser Thr Pro Pro Gly Ser  
1 5 10 15

Ser Gly Gly Ala Pro Ala Ser Ile Pro Thr Glu Ile Pro Thr Ser Ala  
20 25 30

Leu Val Lys Glu Thr Leu Ala Leu Leu Ser Thr His Arg Thr Leu Leu  
35 40 45

Ile Ala Asn Glu Thr Leu Arg Ile Pro Val Pro Val His Lys Asn His  
50 55 60

Gln Leu Cys Thr Glu Glu Ile Phe Gln Gly Ile Gly Thr Leu Glu Ser  
65 70 75 80

Gln Thr Val Gln Gly Gly Thr Val Glu Arg Leu Phe Lys Asn Leu Ser  
85 90 95

Leu Ile Lys Lys Tyr Ile Asp Gly Gln Lys Lys Lys Cys Gly Glu Glu  
100 105 110

Arg Arg Arg Val Asn Gln Phe Leu Asp Tyr Leu Gln Glu Phe Leu Gly  
115 120 125

Val Met Asn Thr Glu Trp Ile Ile Glu Ser  
130 135

<210> 336

<211> 136

<212> PRT

<213> Artificial Sequence

<220>

<223> human C-IL-5-F construct

<400> 336

Ala Asp Pro Gly Cys Gly Gly Gly Gly Gly Leu Ala Ile Pro Thr Glu  
1 5 10 15

Ile Pro Thr Ser Ala Leu Val Lys Glu Thr Leu Ala Leu Leu Ser Thr  
20 25 30

His Arg Thr Leu Leu Ile Ala Asn Glu Thr Leu Arg Ile Pro Val Pro  
35 40 45

Val His Lys Asn His Gln Leu Cys Thr Glu Glu Ile Phe Gln Gly Ile

50

55

60

Gly Thr Leu Glu Ser Gln Thr Val Gln Gly Gly Thr Val Glu Arg Leu  
65 70 75 80

Phe Lys Asn Leu Ser Leu Ile Lys Lys Tyr Ile Asp Gly Gln Lys Lys  
85 90 95

Lys Cys Gly Glu Glu Arg Arg Arg Val Asn Gln Phe Leu Asp Tyr Leu  
100 105 110

Gln Glu Phe Leu Gly Val Met Asn Thr Glu Trp Ile Ile Glu Ser Leu  
115 120 125

Glu Val Leu Ala Ile Glu Gly Arg  
130 135

<210> 337

<211> 123

<212> PRT

<213> Artificial Sequence

<220>

<223> human C-IL-5-S construct

<400> 337

Leu Ala Cys Gly Gly Gly Gly Gly Ile Pro Thr Glu Ile Pro Thr Ser  
1 5 10 15

Ala Leu Val Lys Glu Thr Leu Ala Leu Leu Ser Thr His Arg Thr Leu  
20 25 30

Leu Ile Ala Asn Glu Thr Leu Arg Ile Pro Val Pro Val His Lys Asn  
35 40 45

His Gln Leu Cys Thr Glu Glu Ile Phe Gln Gly Ile Gly Thr Leu Glu  
50 55 60

Ser Gln Thr Val Gln Gly Gly Thr Val Glu Arg Leu Phe Lys Asn Leu  
65 70 75 80

Ser Leu Ile Lys Lys Tyr Ile Asp Gly Gln Lys Lys Lys Cys Gly Glu  
85 90 95

Glu Arg Arg Arg Val Asn Gln Phe Leu Asp Tyr Leu Gln Glu Phe Leu  
100 105 110

Gly Val Met Asn Thr Glu Trp Ile Ile Glu Ser  
115 120

<210> 338  
<211> 27  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> primer NheIL13-F

<400> 338

Cys Thr Ala Gly Cys Thr Ala Gly Cys Cys Gly Gly Gly Cys Cys Gly  
1 5 10 15

Gly Thr Gly Cys Cys Ala Ala Gly Ala Thr Cys  
20 25

<210> 339  
<211> 26  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> primer XhoIL13-R

<400> 339  
tttctcgagg aaggggccgt ggcgaa 26

<210> 340  
<211> 55  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> primer Spelinker3-F1

<400> 340  
ccccgccggg ttcttctggc ggtgctccgg ctagcatgga gattcccatg agcac 55

<210> 341  
<211> 52  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Primer SpeNlinker3-F2

<400> 341  
ttttactagt tggttgccgc ggcccgaac cgagcacccc gccgggttct tc 52

<210> 342  
<211> 49  
<212> DNA

<213> Artificial Sequence

<220>

<223> Primer IL5StopXho-R

<400> 342

ttttgcggcc gcgtttaaac tcgagttatt agccttccat tgcccactc

49

<210> 343

<211> 25

<212> DNA

<213> Artificial Sequence

<220>

<223> Primer BamH1-FLK1-F

<400> 343

cgcgcatcca ttcacgcct ctgtc

25

<210> 344

<211> 26

<212> DNA

<213> Artificial Sequence

<220>

<223> Primer Nhe1-FLK1-B

<400> 344

ctagctagct ttgtgtgaac tcggac

26

<210> 345

<211> 205

<212> PRT

<213> Artificial Sequence

<220>

<223> mVEGFR-2 (2-3) fragment

<400> 345

Pro Phe Ile Ala Ser Val Ser Asp Gln His Gly Ile Val Tyr Ile Thr  
1 5 10 15

Glu Asn Lys Asn Lys Thr Val Val Ile Pro Cys Arg Gly Ser Ile Ser  
20 25 30

Asn Leu Asn Val Ser Leu Cys Ala Arg Tyr Pro Glu Lys Arg Phe Val  
35 40 45

Pro Asp Gly Asn Arg Ile Ser Trp Asp Ser Glu Ile Gly Phe Thr Leu  
50 55 60

Pro Ser Tyr Met Ile Ser Tyr Ala Gly Met Val Phe Cys Glu Ala Lys  
65 70 75 80



Ile Asn Asp Glu Thr Tyr Gln Ser Ile Met Tyr Ile Val Val Val Val  
85 90 95

Gly Tyr Arg Ile Tyr Asp Val Ile Leu Ser Pro Pro His Glu Ile Glu  
100 105 110

Leu Ser Ala Gly Glu Lys Leu Val Leu Asn Cys Thr Ala Arg Thr Glu  
115 120 125

Leu Asn Val Gly Leu Asp Phe Thr Trp His Ser Pro Pro Ser Lys Ser  
130 135 140

His His Lys Lys Ile Val Asn Arg Asp Val Lys Pro Phe Pro Gly Thr  
145 150 155 160

Val Ala Lys Met Phe Leu Ser Thr Leu Thr Ile Glu Ser Val Thr Lys  
165 170 175

Ser Asp Gln Gly Glu Tyr Thr Cys Val Ala Ser Ser Gly Arg Met Ile  
180 185 190

Lys Arg Asn Arg Thr Phe Val Arg Val His Thr Lys Pro  
195 200 205

<210> 346

<211> 263

<212> PRT

<213> Artificial Sequence

<220>

<223> human C-LT\_49-306 fragment

<400> 346

Leu Ala Cys Gly Gly Gln Asp Gln Gly Arg Arg Val Glu Lys Ile Ile  
1 5 10 15

Gly Ser Gly Ala Gln Ala Gln Lys Arg Leu Asp Asp Ser Lys Pro Ser  
20 25 30

Cys Ile Leu Pro Ser Pro Ser Ser Leu Ser Glu Thr Pro Asp Pro Arg  
35 40 45

Leu His Pro Gln Arg Ser Asn Ala Ser Arg Asn Leu Ala Ser Thr Ser  
50 55 60

Gln Gly Pro Val Ala Gln Ser Ser Arg Glu Ala Ser Ala Trp Met Thr

```
<210> 347
<211> 186
<212> PRT
<213> Artificial Sequence

<220>
<223> human C-LT_126-306 fragment

<400> 347
```

Leu Ala Cys Gly Gly Ser Pro Ala Ala Asp Ser Thr Pro Asp Pro Gly  
1 5 10 15

Val Gln Gln Leu Pro Lys Gly Glu Pro Glu Thr Asp Leu Asn Pro Glu  
20 25 30

Leu Pro Ala Ala His Leu Ile Gly Ala Trp Met Ser Gly Gln Gly Leu  
35 40 45

Ser Trp Glu Ala Ser Gln Glu Glu Ala Phe Leu Arg Ser Gly Ala Gln  
50 55 60

Phe Ser Pro Thr His Gly Leu Ala Leu Pro Gln Asp Gly Val Tyr Tyr  
65 70 75 80

Leu Tyr Cys His Val Gly Tyr Arg Gly Arg Thr Pro Pro Ala Gly Arg  
85 90 95

Ser Arg Ala Arg Ser Leu Thr Leu Arg Ser Ala Leu Tyr Arg Ala Gly  
100 105 110

Gly Ala Tyr Gly Arg Gly Ser Pro Glu Leu Leu Leu Glu Gly Ala Glu  
115 120 125

Thr Val Thr Pro Val Val Asp Pro Ile Gly Tyr Gly Ser Leu Trp Tyr  
130 135 140

Thr Ser Val Gly Phe Gly Gly Leu Ala Gln Leu Arg Ser Gly Glu Arg  
145 150 155 160

Val Tyr Val Asn Ile Ser His Pro Asp Met Val Asp Tyr Arg Arg Gly  
165 170 175

Lys Thr Phe Phe Gly Ala Val Met Val Gly  
180 185

<210> 348

<211> 117

<212> PRT

<213> Artificial Sequence

<220>

<223> Modified human prion protein fragment

<400> 348

Val Gly Gly Leu Gly Gly Tyr Met Leu Gly Ser Ala Met Ser Arg Pro  
1 5 10 15

Ile Ile His Phe Gly Ser Asp Tyr Glu Asp Arg Tyr Tyr Arg Glu Asn  
20 25 30

Met His Arg Tyr Pro Asn Gln Val Tyr Tyr Arg Pro Met Asp Glu Tyr  
35 40 45

Ser Asn Gln Asn Asn Phe Val His Asp Cys Val Asn Ile Thr Ile Lys  
50 55 60

Gln His Thr Val Thr Thr Thr Thr Lys Gly Glu Asn Phe Thr Glu Thr  
65 70 75 80

Asp Val Lys Met Met Glu Arg Val Val Glu Gln Met Cys Ile Thr Gln  
85 90 95

Tyr Glu Arg Glu Ser Gln Ala Tyr Tyr Gln Arg Gly Arg Leu Ala Gly  
100 105 110

Gly Gly Gly Cys Gly  
115

<210> 349

<211> 117

<212> PRT

<213> Artificial Sequence

<220>

<223> Modified bovine prion protein fragment

<400> 349

Val Gly Gly Leu Gly Gly Tyr Met Leu Gly Ser Ala Met Ser Arg Pro  
1 5 10 15

Leu Ile His Phe Gly Ser Asp Tyr Glu Asp Arg Tyr Tyr Arg Glu Asn  
20 25 30

Met His Arg Tyr Pro Asn Gln Val Tyr Tyr Arg Pro Val Asp Gln Tyr  
35 40 45

Ser Asn Gln Asn Asn Phe Val His Asp Cys Val Asn Ile Thr Val Lys  
50 55 60

Glu His Thr Val Thr Thr Thr Thr Lys Gly Glu Asn Phe Thr Glu Thr  
65 70 75 80

Asp Ile Lys Met Met Glu Arg Val Val Glu Gln Met Cys Ile Thr Gln  
85 90 95

Tyr Gln Arg Glu Ser Gln Ala Tyr Tyr Gln Arg Gly Arg Leu Ala Gly  
100 105 110

Gly Gly Gly Cys Gly  
115

<210> 350  
<211> 117  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Modified sheep prion protein fragment

<400> 350

Val Gly Gly Leu Gly Gly Tyr Met Leu Gly Ser Ala Met Ser Arg Pro  
1 5 10 15

Leu Ile His Phe Gly Asn Asp Tyr Glu Asp Arg Tyr Tyr Arg Glu Asn  
20 25 30

Met Tyr Arg Tyr Pro Asn Gln Val Tyr Tyr Arg Pro Val Asp Arg Tyr  
35 40 45

Ser Asn Gln Asn Asn Phe Val His Asp Cys Val Asn Ile Thr Val Lys  
50 55 60

Gln His Thr Val Thr Thr Thr Thr Lys Gly Glu Asn Phe Thr Glu Thr  
65 70 75 80

Asp Ile Lys Ile Met Glu Arg Val Val Glu Gln Met Cys Ile Thr Gln  
85 90 95

Tyr Gln Arg Glu Ser Gln Ala Tyr Tyr Gln Arg Gly Arg Leu Ala Gly  
100 105 110

Gly Gly Gly Cys Gly  
115

<210> 351  
<211> 26  
<212> PRT  
<213> Homo sapiens

<220>  
<223> VEGFR-II derived peptide

<400> 351

Cys Thr Ala Arg Thr Glu Leu Asn Val Gly Ile Asp Phe Asn Trp Glu  
1 5 10 15

Tyr Pro Ser Ser Lys His Gln His Lys Lys  
20 25

<210> 352

<211> 26

<212> PRT

<213> Artificial

<220>

<223> Murine VEGFR-II derived peptide

<400> 352

Cys Thr Ala Arg Thr Glu Leu Asn Val Gly Leu Asp Phe Thr Trp His  
1 5 10 15

Ser Pro Pro Ser Lys Ser His His Lys Lys  
20 25

<210> 353

<211> 14

<212> PRT

<213> Artificial

<220>

<223> Angiotensinogen

<400> 353

Asp Arg Val Tyr Ile His Pro Phe His Leu Val Ile His Asn  
1 5 10

<210> 354

<211> 10

<212> PRT

<213> Artificial

<220>

<223> Angiotensin I

<400> 354

Asp Arg Val Tyr Ile His Pro Phe His Leu  
1 5 10

<210> 355

<211> 8

<212> PRT

<213> Artificial

<220>  
<223> Angiotensin II

<400> 355

Asp Arg Val Tyr Ile His Pro Phe  
1 5

<210> 356  
<211> 26  
<212> PRT  
<213> Homo sapiens

<220>  
<223> cprplong

<400> 356

Cys Ser Ala Met Ser Arg Pro Ile Ile His Phe Gly Ser Asp Tyr Glu  
1 5 10 15

Asp Arg Tyr Tyr Arg Glu Asn Met His Arg  
20 25

<210> 357  
<211> 16  
<212> PRT  
<213> Homo sapiens

<220>  
<223> cprpshort

<400> 357

Cys Gly Ser Asp Tyr Glu Asp Arg Tyr Tyr Arg Glu Asn Met His Arg  
1 5 10 15

<210> 358  
<211> 14  
<212> PRT  
<213> Artificial

<220>  
<223> MuTNFa Peptide

<400> 358

Cys Gly Gly Val Glu Glu Gln Leu Glu Trp Leu Ser Gln Arg  
1 5 10

<210> 359  
<211> 22  
<212> PRT  
<213> Artificial

<220>

<223> 3'TNF II Peptide

<400> 359

Ser Ser Gln Asn Ser Ser Asp Lys Pro Val Ala His Val Val Ala Asn  
1 5 10 15

His Gly Val Gly Gly Cys  
20

<210> 360

<211> 20

<212> PRT

<213> Artificial

<220>

<223> 5'TNF II Peptide

<400> 360

Cys Ser Ser Gln Asn Ser Ser Asp Lys Pro Val Ala His Val Val Ala  
1 5 10 15

Asn His Gly Val  
20

<210> 361

<211> 22

<212> PRT

<213> Homo sapiens

<220>

<223> 4-22 epitope

<400> 361

Ser Ser Arg Thr Pro Ser Asp Lys Pro Val Ala His Val Val Ala Asn  
1 5 10 15

Pro Gln Ala Glu Gly Gln  
20

<210> 362

<211> 11

<212> PRT

<213> Homo sapiens

<220>

<223> amino acid residues 22-32

<400> 362

Gln Leu Gln Trp Leu Asn Arg Arg Ala Asn Ala  
1 5 10



<210> 363  
<211> 74  
<212> DNA  
<213> Artificial

<220>  
<223> pET22b(+)

<400> 363  
gtttaacttt aagaaggaga tatacatatg gatccggcta gcgctcgagg gtttaaacgg 60  
cggccgcatg cacc 74

<210> 364  
<211> 26  
<212> PRT  
<213> Artificial

<220>  
<223> cprplong prion peptide

<400> 364

Cys	Ser	Ala	Met	Ser	Arg	Pro	Met	Ile	His	Phe	Gly	Asn	Asp	Trp	Glu
1				5					10					15	

Asp	Arg	Tyr	Tyr	Arg	Glu	Asn	Met	Tyr	Arg
			20					25	

<210> 365  
<211> 16  
<212> PRT  
<213> Artificial

<220>  
<223> cprpshort prion peptide

<400> 365

Cys	Gly	Asn	Asp	Trp	Glu	Asp	Arg	Tyr	Tyr	Arg	Glu	Asn	Met	Tyr	Arg
1				5					10					15	

<210> 366  
<211> 26  
<212> PRT  
<213> Artificial

<220>  
<223> murine VEGFR-2 peptide

<400> 366

Cys	Thr	Ala	Arg	Thr	Glu	Leu	Asn	Val	Gly	Leu	Asp	Phe	Thr	Trp	His
1				5					10					15	

Ser Pro Pro Ser Lys Ser His His Lys Lys  
20 25

<210> 367  
<211> 18  
<212> PRT  
<213> Artificial

<220>

<223> A $\beta$  1-15

<400> 367

Asp Ala Glu Phe Arg His Asp Ser Gly Tyr Glu Val His His Gln Gly  
1 5 10 15

Gly Cys

<210> 368  
<211> 30  
<212> PRT  
<213> Artificial

<220>

<223> A $\beta$  1-27

<400> 368

Asp Ala Glu Phe Arg His Asp Ser Gly Tyr Glu Val His His Gln Lys  
1 5 10 15

Leu Val Phe Phe Ala Glu Asp Val Gly Ser Asn Gly Gly Cys  
20 25 30

<210> 369  
<211> 17  
<212> PRT  
<213> Artificial

<220>

<223> A $\beta$  33-42

<400> 369

Cys Gly His Gly Asn Lys Ser Gly Leu Met Val Gly Gly Val Val Ile  
1 5 10 15

Ala

<210> 370  
<211> 37  
<212> DNA  
<213> Artificial

<220>

<223> inverse primer

<400> 370  
ggtaacatcg gtcgagatgg aaaacaaact ctggtcc 37

<210> 371  
<211> 37  
<212> DNA  
<213> Artificial

<220>  
<223> inverse primer

<400> 371  
ggaccagagt ttgttttcca tctcgaccga tgttacc 37

<210> 372  
<211> 22  
<212> DNA  
<213> Artificial

<220>  
<223> upstream primer

<400> 372  
agctcgcccg gggatcctct ag 22

<210> 373  
<211> 40  
<212> DNA  
<213> Artificial

<220>  
<223> downstream primer

<400> 373  
cgatgcattt catccttagt tatcaatacg ctgggttcag 40

<210> 374  
<211> 36  
<212> DNA  
<213> Artificial

<220>  
<223> inverse primer

<400> 374  
ggcaaaatta gagactgtta ctttaggtaa gatcgg 36

<210> 375  
<211> 36  
<212> DNA  
<213> Artificial

<220>  
<223> inverse primer

<400> 375  
ccgatcttac ctaaagtaac agtctctaataa tttgcc 36

<210> 376  
<211> 33  
<212> DNA  
<213> Artificial

<220>  
<223> Upstream primer

<400> 376  
ggccatggca cgactcgaga ctggtacttt agg 33

<210> 377  
<211> 19  
<212> DNA  
<213> Artificial

<220>  
<223> Downstream primer

<400> 377  
gatttaggtg acactatag 19

<210> 378  
<211> 37  
<212> DNA  
<213> Artificial

<220>  
<223> Inverse primer

<400> 378  
gatggacgtc aaactctggt cctcaatccg cgtgggg 37

<210> 379  
<211> 37  
<212> DNA  
<213> Artificial

<220>  
<223> Inverse primer

<400> 379  
ccccacgcgg attgaggacc agagtttgac gtccatc 37

<210> 380  
<211> 11  
<212> PRT  
<213> Artificial

<220>  
<223> Angio I

<400> 380

Cys Gly Gly Asp Arg Val Tyr Ile His Pro Phe  
1 5 10

<210> 381

<211> 13

<212> PRT

<213> Artificial

<220>

<223> Angio II

<400> 381

Cys Gly Gly Asp Arg Val Tyr Ile His Pro Phe His Leu  
1 5 10

<210> 382

<211> 13

<212> PRT

<213> Artificial

<220>

<223> Angio III

<400> 382

Asp Arg Val Tyr Ile His Pro Phe His Leu Gly Gly Cys  
1 5 10

<210> 383

<211> 11

<212> PRT

<213> Artificial

<220>

<223> Angio IV

<400> 383

Cys Asp Arg Val Tyr Ile His Pro Phe His Leu  
1 5 10

<210> 384

<211> 23

<212> PRT

<213> Artificial

<220>

<223> Der p I p52; aa 52-72

<400> 384

Cys Gly Asn Gln Ser Leu Asp Leu Ala Glu Gln Glu Leu Val Asp Cys  
1 5 10 15

Ala Ser Gln His Gly Cys His  
20

<210> 385  
<211> 21  
<212> PRT  
<213> Artificial

<220>  
<223> Der p 1 p117; aa 117-137

<400> 385

Cys Gln Ile Tyr Pro Pro Asn Ala Asn Lys Ile Arg Glu Ala Leu Ala  
1 5 10 15

Gln Thr His Ser Ala  
20

<210> 386  
<211> 38  
<212> DNA  
<213> Artificial

<220>  
<223> HBcAgwtHindIIII

<400> 386  
cgcggtcccaa gcttctaaca ttgagattcc cgagattg

38

<210> 387  
<211> 14  
<212> PRT  
<213> Artificial

<220>  
<223> muTNFa peptide

<400> 387

Cys Gly Gly Val Glu Glu Gln Leu Glu Trp Leu Ser Gln Arg  
1 5 10

<210> 388  
<211> 54  
<212> DNA  
<213> Artificial

<220>  
<223> Primer CA2F

<400> 388  
cggctcgagc atcaccatca ccatcacggt gaagttaaac tgcagctgga gtcg

54

<210> 389  
<211> 52  
<212> DNA  
<213> Artificial

<220>  
<223> Primer CA1R

<400> 389  
catgccatgg ttaaccacag gtgtgggttt tatcacaaga tttgggcaca ac 52

<210> 390  
<211> 61  
<212> DNA  
<213> Artificial

<220>  
<223> Primer CB1R

<400> 390  
catgccatgg ttaaccacac ggcggagagg tgtgggtttt atcacaagat ttgggctcaa 60

c 61

<210> 391  
<211> 58  
<212> DNA  
<213> Artificial

<220>  
<223> Primer CC1R

<400> 391  
ccagaagaac ccggcggggt agacggtttc gggctagcac aagatttggg ctcaactc 58

<210> 392  
<211> 60  
<212> DNA  
<213> Artificial

<220>  
<223> Primer CC1F

<400> 392  
cgccgggttc ttctggtggt gctccgggtg gttgcggtta accatggaga aaataaagag 60

<210> 393  
<211> 18  
<212> DNA  
<213> Artificial

<220>  
<223> Primer CCR2

<400> 393  
ctccccgggta gaagtcac 18

<210> 394  
<211> 219  
<212> PRT  
<213> Artificial

<220>  
<223> Light chains of pCA2, pCB2 and pCC2

<400> 394

Asp Ile Glu Leu Val Val Thr Gln Pro Ala Ser Val Ser Gly Ser Pro  
1 5 10 15

Gly Gln Ser Ile Thr Ile Ser Cys Thr Gly Thr Arg Ser Asp Val Gly  
20 25 30

Gly Tyr Asn Tyr Val Ser Trp Tyr Gln Gln His Pro Gly Lys Ala Pro  
35 40 45

Lys Leu Met Ile Tyr Asp Val Ser Asn Arg Pro Ser Gly Val Ser Asn  
50 55 60

Arg Phe Ser Gly Ser Lys Ser Gly Asn Thr Ala Ser Leu Thr Ile Ser  
65 70 75 80

Gly Leu Gln Ala Glu Asp Glu Ala Asp Tyr Tyr Cys Ser Ser Tyr Thr  
85 90 95

Ser Ser Ser Thr Leu Gly Val Phe Gly Gly Gly Thr Lys Leu Thr Val  
100 105 110

Leu Gly Gln Pro Lys Ala Ala Pro Ser Val Thr Leu Phe Pro Pro Ser  
115 120 125

Ser Glu Glu Leu Gln Ala Asn Lys Ala Thr Leu Val Cys Leu Ile Ser  
130 135 140

Asp Phe Tyr Pro Gly Ala Val Thr Val Ala Trp Lys Ala Asp Ser Ser  
145 150 155 160

Pro Val Lys Ala Gly Val Glu Thr Thr Thr Pro Ser Lys Gln Ser Asn  
165 170 175

Asn Lys Tyr Ala Ala Ser Ser Tyr Leu Ser Leu Thr Pro Glu Gln Trp  
180 185 190

Lys Ser His Lys Ser Tyr Ser Cys Gln Val Thr His Glu Gly Ser Thr  
195 200 205



Val Glu Lys Thr Val Ala Pro Thr Glu Cys Ser  
210 215

<210> 395  
<211> 251  
<212> PRT  
<213> Artificial

<220>  
<223> Heavy chain of pCA2

<400> 395

Glu Val Lys Leu Gln Leu Glu His His His His His His Gly Glu Val  
1 5 10 15

Lys Leu Gln Leu Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Glu Thr  
20 25 30

Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Ser Gly Gly  
35 40 45

Tyr Tyr Trp Thr Trp Ile Arg Gln Arg Pro Gly Lys Gly Leu Glu Trp  
50 55 60

Ile Gly Tyr Ile Tyr Tyr Ser Gly Ser Thr Ser Tyr Asn Pro Ser Leu  
65 70 75 80

Lys Ser Arg Val Thr Met Ser Val Asp Thr Ser Lys Asn Gln Phe Ser  
85 90 95

Leu Arg Leu Thr Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr Cys  
100 105 110

Ala Arg Glu Arg Gly Glu Thr Gly Leu Tyr Tyr Pro Tyr Tyr Tyr Ile  
115 120 125

Asp Val Trp Gly Thr Gly Thr Thr Val Thr Val Ser Ser Ala Ser Thr  
130 135 140

Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser  
145 150 155 160

Gly Gly Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu  
165 170 175

Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val His

180 185 190

Thr Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser  
195 200 205

Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys  
210 215 220

Asn Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu  
225 230 235 240

Pro Lys Ser Cys Asp Lys Thr His Thr Cys Gly  
245 250

<210> 396  
<211> 254  
<212> PRT  
<213> Artificial

<220>  
<223> Heavy chain of pCB2

<400> 396

Glu Val Lys Leu Gln Leu Glu His His His His His His Gly Glu Val  
1 5 10 15

Lys Leu Gln Leu Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Glu Thr  
20 25 30

Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Ser Gly Gly  
35 40 45

Tyr Tyr Trp Thr Trp Ile Arg Gln Arg Pro Gly Lys Gly Leu Glu Trp  
50 55 60

Ile Gly Tyr Ile Tyr Tyr Ser Gly Ser Thr Ser Tyr Asn Pro Ser Leu  
65 70 75 80

Lys Ser Arg Val Thr Met Ser Val Asp Thr Ser Lys Asn Gln Phe Ser  
85 90 95

Leu Arg Leu Thr Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr Cys  
100 105 110

Ala Arg Glu Arg Gly Glu Thr Gly Leu Tyr Tyr Pro Tyr Tyr Tyr Ile  
115 120 125

Asp Val Trp Gly Thr Gly Thr Thr Val Thr Val Ser Ser Ala Ser Thr  
130 135 140

Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser  
145 150 155 160

Gly Gly Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu  
165 170 175

Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val His  
180 185 190

Thr Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser  
195 200 205

Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys  
210 215 220

Asn Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu  
225 230 235 240

Pro Lys Ser Cys Asp Lys Thr His Thr Ser Pro Pro Cys Gly  
245 250

<210> 397  
<211> 263  
<212> PRT  
<213> Artificial

<220>  
<223> Heavy chain of pCC2

<400> 397

Glu Val Lys Leu Gln Leu Glu His His His His His His Gly Glu Val  
1 5 10 15

Lys Leu Gln Leu Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Glu Thr  
20 25 30

Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Ser Gly Gly  
35 40 45

Tyr Tyr Trp Thr Trp Ile Arg Gln Arg Pro Gly Lys Gly Leu Glu Trp  
50 55 60

Ile Gly Tyr Ile Tyr Tyr Ser Gly Ser Thr Ser Tyr Asn Pro Ser Leu  
65 70 75 80

Lys Ser Arg Val Thr Met Ser Val Asp Thr Ser Lys Asn Gln Phe Ser  
85 90 95

Leu Arg Leu Thr Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr Cys  
100 105 110

Ala Arg Glu Arg Gly Glu Thr Gly Leu Tyr Tyr Pro Tyr Tyr Tyr Ile  
115 120 125

Asp Val Trp Gly Thr Gly Thr Thr Val Thr Val Ser Ser Ala Ser Thr  
130 135 140

Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser  
145 150 155 160

Gly Gly Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu  
165 170 175

Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val His  
180 185 190

Thr Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser  
195 200 205

Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys  
210 215 220

Asn Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu  
225 230 235 240

Pro Lys Ser Cys Ala Ser Pro Lys Pro Ser Thr Pro Pro Gly Ser Ser  
245 250 255

Gly Gly Ala Pro Gly Gly Cys  
260

<210> 398  
<211> 23  
<212> PRT  
<213> Artificial

<220>  
<223> TNF- $\alpha$  attachment

<400> 398

Cys Ser Ser Arg Thr Pro Ser Asp Lys Pro Val Ala His Val Val Ala  
1 5 10 15

Asn Pro Gln Ala Glu Gly Gln  
20

<210> 399  
<211> 25  
<212> PRT  
<213> Artificial

<220>  
<223> TNF- $\alpha$  attachment

<400> 399

Ser Ser Arg Thr Pro Ser Asp Lys Pro Val Ala His Val Val Ala Asn  
1 5 10 15

Pro Gln Ala Glu Gly Gln Gly Gly Cys  
20 25

<210> 400  
<211> 14  
<212> PRT  
<213> Artificial

<220>  
<223> TNF- $\alpha$  attachment

<400> 400

Cys Gly Gly Gln Leu Gln Trp Leu Asn Arg Arg Ala Asn Ala  
1 5 10

<210> 401  
<211> 26  
<212> PRT  
<213> Bovine

<220>  
<223> cprplong

<400> 401

Cys Ser Ala Met Ser Arg Pro Leu Ile His Phe Gly Asn Asp Tyr Glu  
1 5 10 15

Asp Arg Tyr Tyr Arg Glu Asn Met His Arg  
20 25

<210> 402  
<211> 16  
<212> PRT  
<213> Bovine

<220>

<223> cprpshort

<400> 402

Cys	Gly	Asn	Asp	Tyr	Glu	Asp	Arg	Tyr	Tyr	Arg	Glu	Asn	Met	His	Arg
1				5				10						15	

<210> 403

<211> 26

<212> PRT

<213> Sheep

<220>

<223> cprplong

<400> 403

Cys	Ser	Ala	Met	Ser	Arg	Pro	Leu	Ile	His	Phe	Gly	Asn	Asp	Tyr	Glu
1				5				10						15	

Asp	Arg	Tyr	Tyr	Arg	Glu	Asn	Met	Tyr	Arg
			20					25	

<210> 404

<211> 16

<212> PRT

<213> Sheep

<220>

<223> cprpshort

<400> 404

Cys	Gly	Asn	Asp	Tyr	Glu	Asp	Arg	Tyr	Tyr	Arg	Glu	Asn	Met	Tyr	Arg
1				5				10						15	

<210> 405

<211> 7

<212> PRT

<213> Artificial

<220>

<223> ABeta N-terminus fused

<400> 405

Cys	Gly	His	Gly	Asn	Lys	Ser
1				5		

<210> 406

<211> 5

<212> PRT

<213> Artificial

<220>

<223> HBcAg1-183Lys construct

<400> 406

Gly Gly Lys Gly Gly  
1 5

<210> 407

<211> 5

<212> PRT

<213> Artificial

<220>

<223> Glycine serine linkers

<400> 407

Gly Gly Gly Gly Ser  
1 5

<210> 408

<211> 10

<212> PRT

<213> Artificial

<220>

<223> N-terminal gamma 1

<400> 408

Cys Gly Asp Lys Thr His Thr Ser Pro Pro  
1 5 10

<210> 409

<211> 10

<212> PRT

<213> Artificial

<220>

<223> C-terminal gamma 1

<400> 409

Asp Lys Thr His Thr Ser Pro Pro Cys Gly  
1 5 10

<210> 410

<211> 17

<212> PRT

<213> Artificial

<220>

<223> N-terminal gamma 3

<400> 410

Cys Gly Gly Pro Lys Pro Ser Thr Pro Pro Gly Ser Ser Gly Gly Ala  
1 5 10 15

Pro

<210> 411  
<211> 18  
<212> PRT  
<213> Artificial

<220>  
<223> C-terminal gamma 3

<400> 411

Pro	Lys	Pro	Ser	Thr	Pro	Pro	Gly	Ser	Ser	Gly	Gly	Ala	Pro	Gly	Gly
1				5				10						15	

Cys Gly

<210> 412  
<211> 6  
<212> PRT  
<213> Artificial

<220>  
<223> N-terminal glycine linker

<400> 412

Gly	Cys	Gly	Gly	Gly	Gly
1				5	

<210> 413  
<211> 6  
<212> PRT  
<213> Artificial

<220>  
<223> C-terminal glycine linker

<400> 413

Gly	Gly	Gly	Gly	Cys	Gly
1				5	

<210> 414  
<211> 4  
<212> PRT  
<213> Artificial

<220>  
<223> C-terminal peptide linker

<400> 414



Gly Gly Cys Gly

1

<210> 415

<211> 5

<212> PRT

<213> Artificial

<220>

<223> Lymphotoxin-Beta linker

<400> 415

Leu Ala Cys Gly Gly

1

5

<210> 416

<211> 4

<212> PRT

<213> Artificial

<220>

<223> Amino acid linker

<400> 416

Ala Cys Gly Gly

1

<210> 417

<211> 8

<212> PRT

<213> Artificial

<220>

<223> N-terminal IL-13

<400> 417

Leu Ala Cys Gly Gly Gly Gly Gly

1

5

<210> 418

<211> 7

<212> PRT

<213> Artificial

<220>

<223> Amino acid linker

<400> 418

Ala Cys Gly Gly Gly Gly Gly

1

5

<210> 419  
<211> 12  
<212> PRT  
<213> Artificial

<220>  
<223> N-terminal IL-5

<400> 419

Ala Asp Pro Gly Cys Gly Gly Gly Gly Gly Leu Ala  
1 5 10

<210> 420  
<211> 7  
<212> PRT  
<213> Artificial

<220>  
<223> Amino acid linker

<400> 420

Gly Cys Gly Gly Gly Gly Gly  
1 5

<210> 421  
<211> 31  
<212> PRT  
<213> Artificial

<220>  
<223> Amidated ABeta 1-27

<220>  
<221> MOD\_RES  
<222> (31)..(31)  
<223> AMIDATION

<400> 421

Asp Ala Glu Phe Arg His Asp Ser Gly Tyr Glu Val His His Gln Lys  
1 5 10 15

Leu Val Phe Phe Ala Glu Asp Val Gly Ser Asn Gly Gly Cys Xaa  
20 25 30

<210> 422  
<211> 17  
<212> PRT  
<213> Artificial

<220>  
<223> Hydrogenated ABeta 33-42

<220>  
<221> MOD\_RES  
<222> (1)..(1)  
<223> Xaa=Hydrogen

<400> 422

Xaa Cys Gly His Gly Asn Lys Ser Gly Leu Met Val Gly Gly Val Val  
1 5 10 15

Ile

<210> 423  
<211> 19  
<212> PRT  
<213> Artificial

<220>  
<223> Amidated ABeta 1-15

<220>  
<221> MOD\_RES  
<222> (19)..(19)  
<223> AMIDATION

<400> 423

Asp Ala Glu Phe Arg His Asp Ser Gly Tyr Glu Val His His Gln Gly  
1 5 10 15

Gly Cys Xaa

<210> 424  
<211> 9  
<212> PRT  
<213> Artificial

<220>  
<223> Amino acid linker

<400> 424

Gly Cys Gly Ser Gly Gly Gly Gly Ser  
1 5

<210> 425  
<211> 10  
<212> PRT  
<213> Artificial

<220>  
<223> Amino acid linker

<400> 425

Gly Ser Gly Gly Gly Gly Ser Gly Cys Gly  
1 5 10

<210> 426

<211> 745

<212> DNA

<213> Artificial

<220>

<223> pCep-Xa-Fc\* construct

<400> 426

```
gatccagcag ctgggctcga ggtgctagcg ggaggggggtg gatgtgggat cgaaggtcgc      60
aagcttactc acacatgccc accgtgccca gcacctgaag ccgagggggc accgtcagtc      120
ttcctcttcc ccccaaaacc caaggacacc ctcatgatct cccggacccc tgaggtcaca      180
tgctgtggtgg tggacgtgag ccacgaagac cctgaggtca agttcaactg gtacgtggac      240
ggcgtggagg tgcataatgc caagacaaag ccgcggggagg agcagtacaa cagcacgtac      300
cgtgtggtca gcgctctcac cgtcctgcac caggactggc tgaatggcaa ggagtacaag      360
tgcaaggctc ccaacaaagc cctcccagcc tccatcgaga aaaccatctc caaagccaaa      420
gggcagcccc gagaaccaca ggtgtacacc ctgcccccat cccgggatga gctgaccaag      480
aaccagggtca gcctgacctg cctggtcaaa ggcttctatc ccagcgacat cgccgtggag      540
tgggagagca atgggcagcc ggagaacaac tacaagacca cgcctcccggt gttggactcc      600
gacggctcct tcttctctta cagcaagctc accgtggaca agagcagggtg gcagcagggg      660
aacgtcttct catgtcccggt gatgcatgag gctctgcaca accactacac gcagaagagc      720
ctctccctgt ctccgggtaa atgac      745
```

<210> 427

<211> 96

<212> DNA

<213> Artificial

<220>

<223> pCep-EK-Fc\* construct

<400> 427

```
gatccagcag ctgggctcga ggtgctagcg ggaggggggtg gatgtgggga cgatgacgac      60
aagcttactc acacatgccc accgtgccca gcacct      96
```

<210> 428

<211> 144

<212> DNA

<213> Artificial

<220>

<223> pCep-SP-EK-Fc\* construct

<400> 428

atggagacag acacactcct gctatgggta ctgctgctct gggttccagg ttccactggt 60

gacgcggatc cagcagctgg gctcgagggtg ctagcgggag ggggtggatg tggggacgat 120

gacgacaagc ttactcacac atgc 144

<210> 429

<211> 399

<212> DNA

<213> Mouse

<220>

<223> Resistin protein Res-C-Xa

<400> 429

ggatccggga tgaagaacct ttcatttccc ctctttttcc ttttcttctt tgtccctgaa 60

ctgctgggct ccagcatgcc actgtgtccc atcgatgaag ccacgcacaa gaagatcaaa 120

caagacttca actccctggt tccaaatgca ataaagaaca ttggcttaaa ttgctggaca 180

gtctcctcca gaggggaagtt ggcctcctgc ccagaaggca cagcagtctt gagctgctcc 240

tgtggctctg cctgtggctc gtgggacatt cgtgaagaaa aagtgtgtca ctgccagtgt 300

gcaaggatag actggacagc agcccgtgc tgtaagctgc aggtcgcttc ctctctagcg 360

ggaggggggtg gatgtgggat cgaaggctgc aagcttact 399

<210> 430

<211> 399

<212> DNA

<213> Mouse

<220>

<223> Resistin protein Res-C-EK

<400> 430

ggatccggga tgaagaacct ttcatttccc ctctttttcc ttttcttctt tgtccctgaa 60

ctgctgggct ccagcatgcc actgtgtccc atcgatgaag ccacgcacaa gaagatcaaa 120

caagacttca actccctggt tccaaatgca ataaagaaca ttggcttaaa ttgctggaca 180

gtctcctcca gaggggaagtt ggcctcctgc caagaaggca cagcagtctt gagctgctcc 240

tgtggctctg cctctggctc gtgggacatt cgtgaagaaa aagtgtgtca ctgccagtgt 300

gcaaggatag actggacagc agcccgtgc tgtaagctgc aggtcgcttc ctctctagcg 360

ggaggggggtg gatgtgggga cgatgacgac aagcttact 399